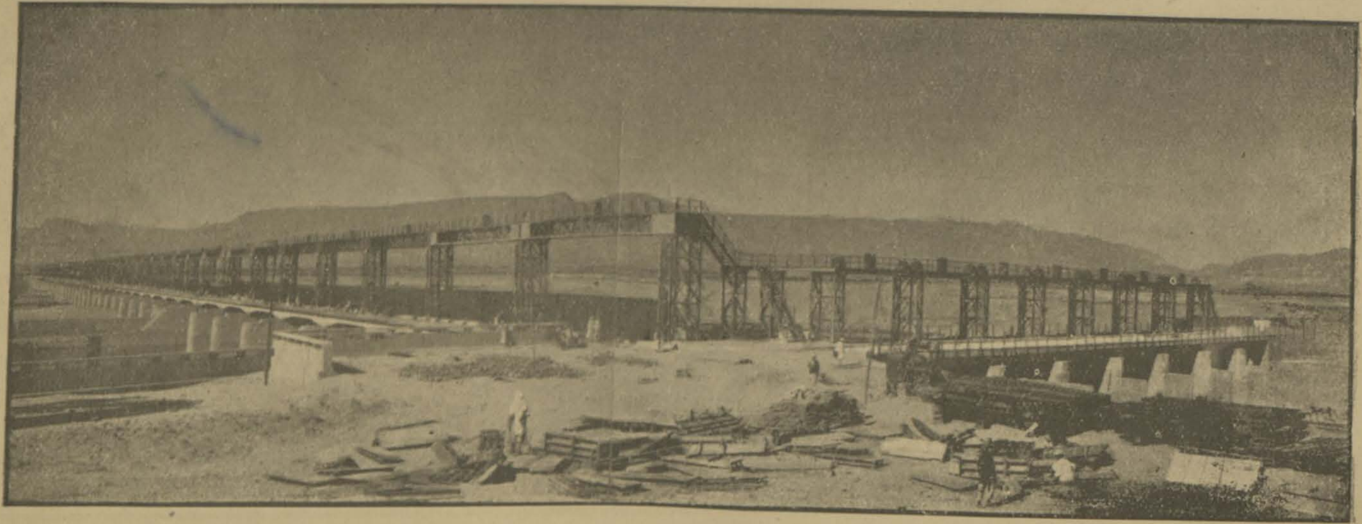
Government of Punjab

Post-War Development Plan Punjab

Lahore
Printed by the Superintendent, Government Printing, Punjab
1945

Post-War Development Plan Punjab

THAL PROJECT



Kalabagh Barrage Nearing Completion

LIST OF CONTENTS

LIST OF ILLUSTRATIONS, ETC.

CHAPTER I

Introductory

The Five Year Plan and its objective

The Punjab Government have prepared a provisional plan for the post-war development of the province. The objective is to raise the standard of living of the people and to increase their purchasing power so as to lead them on to a full and rich life. To this end the entire resources of the province should be fully exploited and utilised. War must also be waged against the famous five giants—poverty, squalor, disease, ignorance and idleness. It is obvious that a task of this magnitude is not capable of efficient execution in a short period. The Plan in its various aspects has, therefore, been conceived on a long-term basis extending over a period of 10 to 15 years—even as much as 35 years in the case of Education, but the schemes comprised in it have been worked out in detail only for a period of five years. Detailed schemes for the subsequent five year periods will be drawn up later in the light of experience gained.

Concentration in Selected Tahsils

The first five year plan is intended to make a beginning so as to ensure steady progress in almost every phase of nation-building activity throughout the province. In view, however, of the limiting factors of finance and staff it is not possible to take up all the schemes for execution in all parts of the province simultaneously. It has, therefore, been decided to concentrate improvement under certain heads, viz., village roads, schools, medical treatment, public health, water supply and co-operation in certain compact areas corresponding to tahsils. Twenty-nine tahsils have been selected for concentrated development. They are—

Rawalpindi Division	*Rawalpindi Division—* concld	*Lahore Division*
Kahuta	Fatehjang	Sialkot
Murree	Chakwal	Narowal
Rawalpindi	Pind Dadan Khan	Tarn Taran
Gujarkhan	Kharian	Ajnala
Talagang	Khushab	
Pindigheb	Isakhel	
Jhelum		

Jullundur Division	*Ambala Division*	*Ambala Division—concld*
Hamirpur	Rohtak	Bhiwani
Palampur	Jhajjar	Hissar
Hoshiarpur	Gurgaon	Kharar
Jullundur	Rewari	
Jagraon		

In making this selection Government was largely influenced by the need for rapid resettlement and absorption in civil life of ex-service personnel. More than a million Punjabis have left their homes either to join the Armed Forces or for some purpose connected with the prosecution of the war and a large number of them will be returning to their homes now that hostilities have terminated. The selected tahsils not only correspond with the best recruiting areas but are generally those which are backward and most in need of development. The remaining tahsils will, it is intended, take their turn in the subsequent five year plans.

General lay-out

The schemes included in the Plan have been classified in the following 4 categories :—

(1) *Special Priority Schemes*—to be put into effect as quickly as possible to provide immediate needs and, in particular, to meet the existing and post-war demands for staff, equipment, etc.

(2) *All-Province Schemes*—to be spread over all districts to cater for urgent and basic requirements.

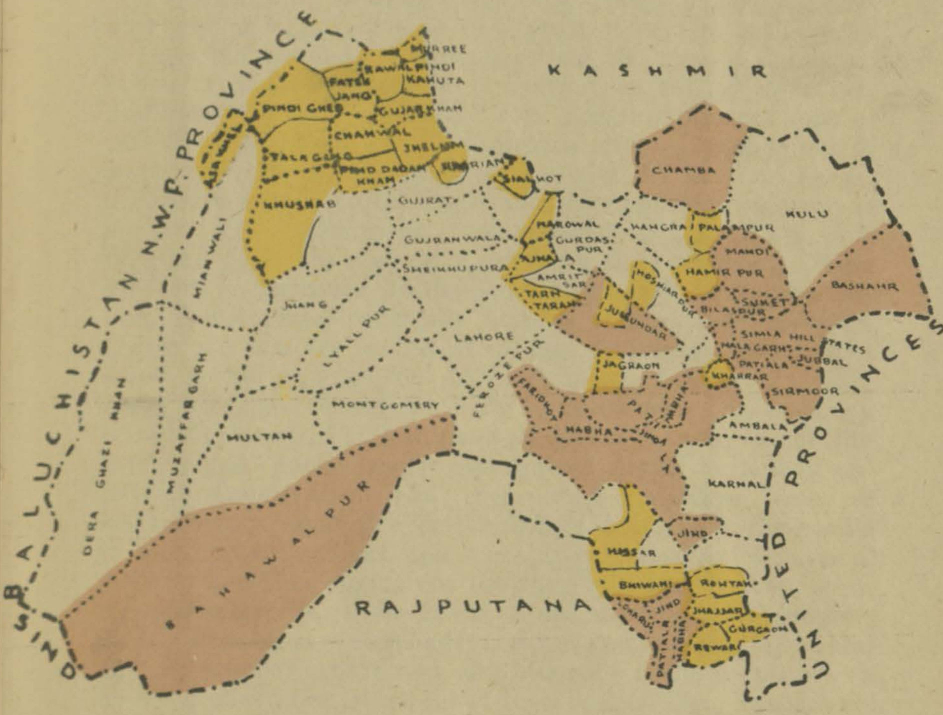
(3) *Particular Area Schemes*—those by their nature suitable for introduction only in certain areas, e.g., anti-erosion measures, irrigation projects, etc.

(4) *Concentrated Area Schemes*—for all round development of selected tahsils.

The back-ground

Before turning to the broad features of the schemes under their various heads, the general lines of development followed in the Plan may briefly be indicated. The Punjabi lives mostly in villages—only 15 per cent of the population is spread over some 200 towns. It is to the development of rural areas, therefore, that attention has to be lagely focussed in the Plan. Agriculture is the backbone of the economic life of the province and provides means of subsistence for almost 75 per cent of its population. Population is increasing at the rate of nearly half a million a year and there being no corresponding increase in the cultivated area it is pressing heavily on the soil. Indis-

MAP OF THE PUNJAB



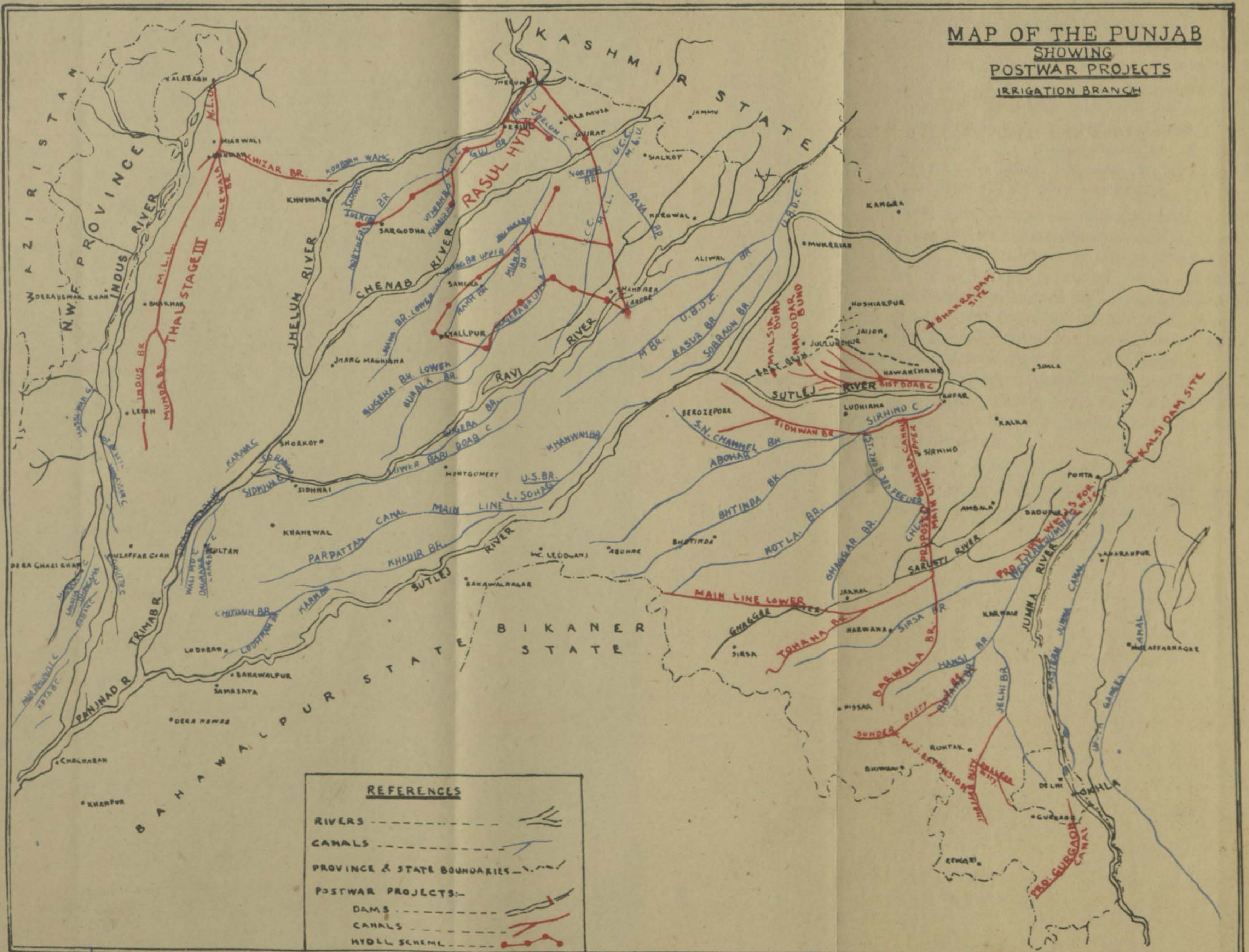
Tahsils proposed for intensive development during the first five years. 

criminate and intensive cultivation as well as uncontrolled run off of water from the hills and high ground are eroding the land at an alarming rate and, together with water-logging and associated evils, are depriving the soil of its essential ingredients of fertility. To increase cultivation and give it better security against drought and famine the existing irrigation facilities are to be extended and means of new irrigation found. The problem of water-logging must be boldly tackled and anti-erosion and land reclamation measures adopted not only to make more land available for cultivation but also to arrest the bankruptcy of the soil which is seriously threatened. Much of the low productivity of land is due to s'ow progress in the employment of improved methods of agriculture and the pace of the application of modern science to agriculture, as well as to an mal husbandry, has to be accelerated if the income of the rural popu'ation is to be raised above subsistence level. Consolidation of scattered holdings, provision of cheap credit and marketing facilities are a few of the many other requirements necessary to improve the condition of those engaged in agricultural pursuits and to secure reasonable prices for their products. These can best be promoted by the co-operative method of organisation. Development of roads and a rationalised transport system are urgently needed as without proper and inexpensive access to all parts of the province, particularly the outlying areas, no improvement can fully be introduced. To ensure a reasonable standard of health and sanitation the activities of the medical and public health departments should be largely extended. Conservatism and deep-rooted prejudices born of ignorance are responsible for the lack of incentive in the people to better their condition and it is only by extending educational facilities and thus wiping out the curse of illiteracy that initiative and enterprise can be developed and any substantial progress made. Promotion of social advancement and fostering of cultural and recreational activities is also necessary if the people are to be lifted above the humdrum of their routine life. Panchayats and welfare centres run, if possible, on co-operative lines, have to be organised for this purpose. Development of industries, particularly of the cottage type, is also essential both to reduce pressure on land and to tackle the unemployment problem satisfactorily. Industrial development is not possible without cheap power and the Punjab being deficient in coal and fuel oils the only alternative is cheap electricity. The storage projects of the Irrigation Department should be able to provide for the generation of cheap and plentiful hydel power which

can be utilized to the greatest advantage not only in industry and agriculture but also for providing the many necessities and amenities of life. Until these schemes materialise other means of making electrical energy available to a large extent for industrial and domestic needs have to be looked for. Organised publicity and propaganda is very necessary not only to keep the public informed of the various measures of planning and development that may be taken but also for securing their co-operation in the carrying out of these measures.

As stated elsewhere the Punjab has more than a million of its sturdy men serving in the Defence Forces and is, therefore, specially concerned with the problem of the resettlement and absorption in civil life of ex-service personnel on demobilization. The interest of ex-servicemen will have to be constantly kept in view in any plan for the development of the Province, but apart from the benefit the servicemen will get by the application of improvement schemes drawn up for the Province as a whole specific resettlement and welfare measures appropriate for them as a class as well as training facilities for the various kinds of employment which they may be expected or wish to take up have to be carefully worked out.

The follwing chapters briefly describing the schemes under different subjects of development will show how far the plan has succeeded in dealing with the various problems referred to above.


MAP OF THE PUNJAB
SHOWING
POSTWAR PROJECTS
IRRIGATION BRANCH
KASHMIR STATE
BIKANER STATE
BAHAWALPUR STATE
N.W.F. PROVINCE
WAZIRISTAN
INDUS RIVER
JHELUM RIVER
CHENAB RIVER
RAVI RIVER
SUTLEJ RIVER
JUMNA RIVER
RASUL HYDEL
THAL STAGE III
BHAKRA DAM SITE
KALSI DAM SITE
MAIN LINE LOWER
PARPATTAN CANAL MAIN LINE
REFERENCES
RIVERS
CANALS
PROVINCE & STATE BOUNDARIES
POSTWAR PROJECTS:-
DAMS
CANALS
HYDEL SCHEME

CHAPTER II

Irrigation and Hydro-Electric Power

The five rivers which have given the province its name have also enabled it to construct one of the finest system of canals. These irrigate about 13 million acres out of approximately 31 million acres of cultivated area in the Punjab. Four million acres are protected by wells, tanks, and other sources of supply. There are still very large areas, particularly in the north, south-east and west Punjab which are dependent for their agriculture on scanty and often erratic rainfall and are badly in need of irrigation. Besides, owing to the poverty of coal supplies in the Punjab it is vital and necessary to produce large quantities of hydro-electric power to assist in industrialisation of the Province and to improve the standard of living of its inhabitants. In order, therefore, to provide extended irrigation facilities and cheap electric power, the following schemes have been included in the first five year programme of the Irrigation Department

Thal—The Thal Project has been framed to take a canal from the Indus at Daudkhel near Kalabagh about 4 miles below Mari Indus for the irrigation of land in the Mianwali, Muzaffargarh and Shahpur districts. Work on this project was started in May 1939 but owing to the war the work had to be stopped after the headworks was completed. This is known as Stage I. In 1944 work was restarted on a limited scale with the aim of growing more food. This contemplates the completion of the Main Lines and the Dullewala and Khizar branches to command an area of about 600,000 acres and to utilize about 2,000 cusecs and forms Stage II of the Project. With so much capital invested in the headworks and Main Line (4·18 crores) it is considered desirable that the entire Project (Stage III) should be completed as soon as possible. When this Project is completed, the canal will command an area of approximately 16 lakhs acres and will fully utilise the discharge of 6,000 cusecs authorised under the existing arrangements with the Government of Sind. An additional 182 miles of branches and 1,000 miles of distributaries will be constructed.

It may be mentioned that while the present allocated discharge is 6,000 cusecs, the headworks and Main Line of the canal are being so designed that with little additional expenditure they will be able to utilise, if permitted, a discharge of 10,000

cusecs which can be used either for extension of irrigation or for the generation of hydro-electric power or both.

The Mianwali Hydel and Pumping Project—This project consists of utilisation of the 35 feet fall in the escape channel from the tail main line of the Thal canal to develop hydro-electric power. 6,600 kW will be generated, out of which 3,800 kW will be used for irrigating, by pumping, an area of 140,000 acres of good land lying on both sides of the Thal Main Line between Daudkhel and Mianwali. The balance of the load will be available for industrial development and domestic load in this part of the province.

Rasul Hydel—An alarming feature of the extensive canal irrigation in the Punjab, is the extent to which this has been accompanied by a rise in the water table, which affects tracts of many thousands of square miles. This effect has been very marked in the last few years when it has been accentuated by heavy monsoon rains. In regions of high water table large areas have gone out of cultivation due to salts brought to the surface by capillary action and in other areas the yield has severely declined. These lands can be improved by leaching, but the process requires a low water table for underground drainage and itself contributes considerably to the sub-soil reservoir. In other areas good lands have been turned into swamps by the rise of the water table.

It is now recognised that in order to remedy these evils the water table must everywhere be reduced to a reasonable distance below the surface, and to secure this the Punjab Government have approved the Rasul Hydel Tubewell Project. Under this scheme plant for generating 22,000 kW will be installed at Rasul where an 80′ head is available, and the power will be used to pump water from tubewells of about 3,000 cusecs capacity to be sunk in the high water table areas. The Project will take about three years to complete. The water from the wells will be used for irrigation and will permit the cultivation of about 750,000 acres of additional crops per annum in the province. It will also make possible the development of all good crown waste areas amounting to 400,000 acres on the northern canals, and help in the expansion of reclamation activities including an attempt to reclaim 2 lakhs of crown waste of poor quality.

The Project is also designed to fit in with the future development of electric power in the province. The Power Station at Rasul will be linked with the grid and there will be an interchange of power between the project and the grid.



Bhakra Dam Gorge looking in an Upstream Direction showing Part of Area to be submerged upstream

Bhakra Dam and Canals—On the completion of the Thal Project the Punjab Canals will have fully utilised the entire winter discharge of the rivers of the Province. Its further irrigational development must depend largely on the storage in the hills of surplus water of the monsoon period which at present runs waste to the sea. This development of high dams in the hills will not only render more water available for irrigation but will also enable hydro-electric power to be generated in abundance.

During the last two years the Punjab has investigated in more or less detail the following storage schemes—the Bhakra Dam on the Sutlej, the Kishau and Kalsi Dams on the Tons Tributary of the Jumna, the Chandni Dam on the Giri tributary of river Jumna, the Dhiangarh Dam on the Chenab and the Larji Dam on the Beas, as well as a number of small storage schemes. Of these the Bhakra Dam scheme is the most promising and it is proposed to take it up first.

The Project contemplates a dam 480′ high across the Sutlej in a gorge at Bhakra, to store 4·3 million acres feet of water, of which 3·5 million acre feet will be live storage capable of discharging during the 270 days, when annual river supplies are non-existent, a mean discharge of 6,000 cusecs. The irrigation system, subject to the settlement of the Sind-Punjab dispute regarding the waters of the Indus and its tributaries, will consist of some 200 miles of lined Main line and a network of distributaries covering an area of about 4½ million acres. This will enable perennial irrigation to be extended into the famine-stricken areas of Rohtak, Hissar and Karnal districts of the Ambala division, as well as portions of adjoining Indian States and will also provide non-perennial irrigation to new areas in Ferozepur district. Further the Project will generate 160,000 kW of power, which will be available for distribution over the whole Province and in particular will open up the eastern part of the Province. The whole scheme is estimated to cost approximately 42·01 crores over a period of seven years. The estimated net profit when the scheme is completed will be 35·13 lakhs annually. An officer of the Irrigation Branch has already been deputed to U. S. A. for the purchase of essential machinery for this Project. Four more officers including one Chief Engineer are at present in America studying the art of high dam construction and design.

Kalsi Dam—This scheme involves the construction, subject to an agreement with the United Provinces Government, of a

dam 210 feet above river level on the Tons tributary of the Jumna river near Kalsi. Originally this scheme was to be taken up at a later date, but while investigating power required for the Bhakra dam construction, it appeared that the most economical source of supply will be from this dam. In addition, the earlier construction of the Kalsi dam will provide power for industrial loads in Ambala, Ludhiana and Karnal districts and the factories at Jagadhri and Surajpur at least four years earlier than would be possible from Bhakra. Also the tubewell scheme to convert the Western Jumna Extensions into perennial and the installation of a tubewell scheme in Gurgaon will be possible at least four years earlier than had these schemes to await the power from Bhakra. This scheme will produce 25,000 kW and impound 40,000 acre feet of water, which however will be used only for the generation of hydro-electric power. The project has not yet been accurately estimated in detail but it is expected to cost about 548 lakhs including 300 lakhs for the dam. The transmission line from Bhakra to Ambala will ultimately be written back to the Bhakra grid and the cost is not therefore included in these figures.

The Bist Doab Area—The twin problems of the Bist Doab area are—

(*a*) Slow sinking of the water table in the Jullundur district due mainly to a large increase in the number of irrigation wells.

(*b*) The denudation in Hoshiarpur district by hill torrents or chos which bring down large quantities of sand, etc., from the Siwaliks and ruin the low lands.

The remedy proposed for the sinking of the water table is the construction of a non-perennial canal taking off from Sutlej at Rupar. A project has been prepared costing 177 lakhs to irrigate on an average 80,000 acres. This scheme is under examination but the immediate proposal is to construct two bunds in the Eastern Bein, one at Malsian and the other at the crossing of the Jullundur-Nikodar road. These bunds will retain water and it is hoped will help in replenishing the wells. Action as regards (*b*) is included in the Forest Department's anti-erosion schemes mentioned in Chapter III. Investigations for the construction of retardation and storage bunds in the *chos* are also in hand.

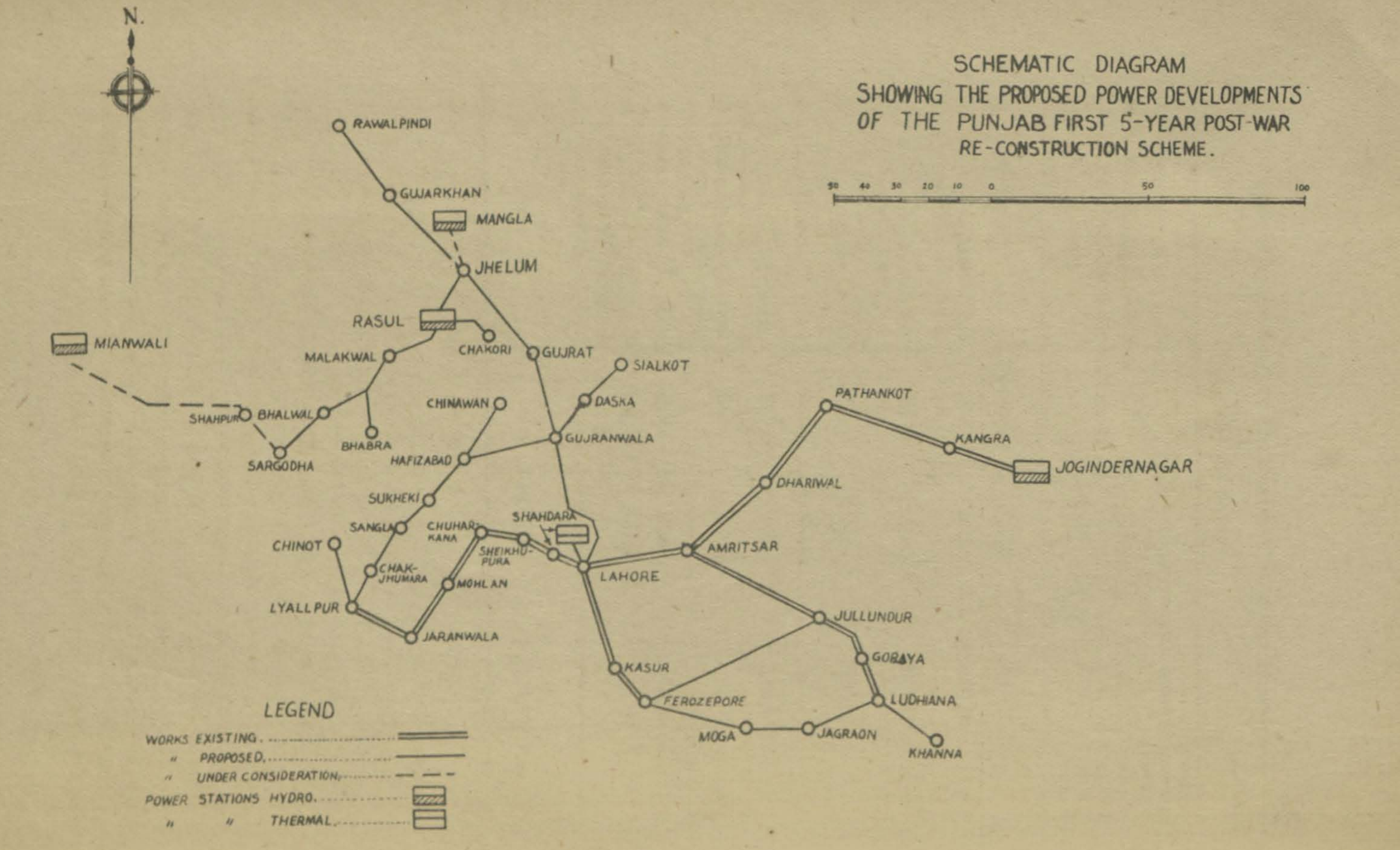
Gurgaon Project—The Government have had for some time under active consideration the necessity for protecting the Gurgaon area against famines which ravage it from time to time. They are endeavouring to find the soundest and most practicable means to provide the largest measures of protection. One scheme included in this plan comprises the construction of a 90-day non-perennial canal from the tail of the Delhi branch of the Western Jumna Canal and carrying the discharge through a tunnel under the Delhi ridge. The discharge of this canal will be 950 cusecs. An alternative scheme is to take a canal from the Jumna river up-stream of the Okhla weir. This canal will protect an area of 300,000 acres as against 420,000 acres proposed to be protected under the previous scheme. The proposed discharge is 1,800 cusecs to irrigate 150,000 acres. This scheme is being investigated in greater detail. Neither of these schemes can be undertaken until an agreement with the United Provinces Government is reached regarding the distribution of the waters of the Jumna river. Protective schemes for Gurgaon area also included in the first 5-year plan are the construction of 3 low dams in local torrents at Dam Damma, Dhauj and Budhkhel. These are small schemes costing about 4 to 5 lakhs each protecting an area of 4,000 acres in each case. It is proposed to take these works at the rate of one per year. Also investigations will be undertaken to ascertain whether, tubewell pumping in this area is a practical possibility. If so, a scheme for the installation of one hundred power driven tubewells will be prepared.

Conversion of the Western Jumna Extensions to Perennial—The extensions of the Western Jumna Canal, with a discharge of 841 cusecs, have been constructed for the dry tracts of Hissar and Rohtak districts. These channels run for only about 90 days in the year, and it is obviously desirable to convert them to perennial at the earliest possible date. Supplies can be made available only from tubewell pumping and this cannot be undertaken until power is available. It is proposed to pump 1,052 cusecs, for which 526 tubewells will be required at a total cost of Rs. 122 lakhs. It is proposed to start construction at the rate of one hundred tubewells per year, commencing from 1948-49, when it is expected power from Kalsi Dam will be available.

The approximate cost of the schemes is given below :—

(In thousands of rupees)

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five-year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
1	Thal Project ..	Particular area	5,60,00	..	5,60,00	..
2	Mianwali Minor Hydro-electric and Pumping Project.	Ditto	1,07,00	..	1,07,00	..
3	Rasul Hydro-electric Tubewell Project	Ditto	9,72,00	..	9,72,00	..
4	Bhakra Dam Canals and Hydro-electric Project.	Ditto	13,50,00	..	13,50,00	..
5	Kalsi Dam ..	Ditto	6,67,00	..	6,67,00	..
6	Gurgaon Irrigation Project	Ditto	2,70,00	..	2,70,00	..
7	Construction of 1 Low Dams in the Gurgaon District.	Ditto	15,00	..	15,00	..
8	Bist Doab Area Project	Ditto	15,00	..	15,00	..
9	Conversion of Western Jumna Extension to perennial by tube-wells	Ditto	75,00	..	75,00	..
	Total ..		40,31,00	..	40,31,00	..


SCHEMATIC DIAGRAM
SHOWING THE PROPOSED POWER DEVELOPMENTS OF THE PUNJAB FIRST 5-YEAR POST-WAR RE-CONSTRUCTION SCHEME.
50 40 30 20 10 0 50 100
N.
RAWALPINDI
GUJARKHAN
MANGLA
JHELUM
RASUL
CHAKORI
MIANWALI
MALAKWAL
GUJRAT
SIALKOT
DASKA
CHINAWAN
SHAHPUR
BHALWAL
BHABRA
SARGODHA
GUJRANWALA
HAFIZABAD
PATHANKOT
KANGRA
JOGINDERNAGAR
DHARIWAL
SUKHEKI
SHAHDARA
SANGLA
CHUHAR-KANA
SHEIKHU-PURA
CHINOT
AMRITSAR
CHAK-JHUMARA
MOHLAN
LAHORE
LYALL PUR
JARANWALA
JULLUNDUR
GORAYA
KASUR
FEROZEPORE
LUDHIANA
MOGA
JAGRAON
KHANNA
LEGEND
WORKS EXISTING
" PROPOSED
" UNDER CONSIDERATION
POWER STATIONS HYDRO
" " THERMAL

CHAPTER III

Electricity

The Punjab is fortunate in having in the Himalayas and in the rivers that flow from it large water-power resources estimated at roughly one million horse power. The ultimate objective is to harness these resources by the construction of large scale hydro-electric schemes to cover the whole province with a net-work of supply lines so as to provide a plentiful supply of electricity, at attractive rates, not only for industrial development but also to bring it within reach of and provide amenities for all classes both in urban and rural areas. Owing to the high cost of selected grade coal in the Punjab electricity produced by hydro-electric power, in spite of long transmission lines that have to be laid, will be cheaper and more reliable than that obtainable from a grid system, supplied by thermal plants. The only scheme of the type which exists is the Mandi Hydro-Electric Scheme which utilizes a fall in the Uhl river diverted through a tunnel and pipelines from Brot in the Mandi State on to Shanan (Jogindernagar). This is at present only capable of generating about 18,000 kW of electric power. Until, however, the large scale hydel projects mentioned in Chapter II materialize the best use is proposed to be made of the power resources that can be more easily made available.

The five-year post-war development schemes of the Electricity Branch consist of—

(1) Rasul Hydro-Electric-cum-Sialkot-Gujranwala-Lyallpur-Rawalpindi Transmission and Distribution Project.

(2) Mangla Hydro-Electric Scheme.

(3) Linking up Shahdara Thermal Power Station of the Lahore Electric Supply Undertaking with the Uhl River Hydro-Electric Scheme.

(4) Jullundur-Ludhiana-Ferozepore Transmission and Distribution Schemes.

(5) Addition of a pipe line with one 12,000 kW generating set, etc., at Jogindernagar.

These schemes have the following main features :—

(*i*) to increase the power supply to the main grid to cope with the greatly increased demand which has occurred during the period of the war and which it was not possible to supply owing to shortage of plant and materials.

(*ii*) to supply electricity throughout large areas, parts of which receive at present electricity supply from thermal stations at relatively high rates.

(*iii*) to supply certain districts adjacent to the canal irrigated areas for tube-well pumping so as to drain water-logged areas and to bring these lands back under cultivation.

Scheme No. 1—This scheme provides for the construction of a hydro-electric power station at Rasul with two 11,000 kWs Kaplan Generating Sets. These turbines will be the largest of their kind in the province, and possibly in the whole of India.

About 30 towns and their adjoining rural areas in the northern districts of Gujranwala, Sheikhupura, Lyallpur, Jhang, Sialkot, Gujrat, Jhelum, Rawalpindi and Shahpur will be supplied with cheap grid power under this project. As stated in Chapter II—Rasul Hydel, this scheme also provides for the supply of electric power to a number of tube-wells for lift irrigation and for improving waterlogged areas.

The supply will be carried by a double circuit transmission line from Rasul to Shalamar via Jhelum, Gujrat and Gujranwala, and a 132,000 volt line from Jhelum to Rawalpindi via Gujarkhan and the following 66,000 volt lines :—

(*i*) Double circuit 66 KV. Lines :—

(*a*) From Gujranwala to Lyallpur via Hafizabad, Sukheki, Sangla Hill and Chak Jhumra.

(*b*) From Rasul to Malakwal.

(*ii*) Single Circuit 66 KV. Lines :—

(*a*) From Lyallpur to Chiniot.

(*b*) From Malakwal to Sargodha via Bhelowal.

(*c*) From Rasul to Chakori.

(*d*) From Malakwal to Bhabra.

(*e*) From Hafizabad to Chinawan.

(*f*) From Gujranwala to Sialkot via Daska.

Scheme No. 2 *Mangla Hydro-Electric Scheme*—Mangla is situated close to the headworks of the Upper Jhelum Canal and it is possible to develop about 10,000 kWs of primary power at this place with a fall of 30 feet.

The installation would consist of three 6,000 kW Kaplan wheel turbine generators. The development of this fall would provide primary power with none or very little of the disadvantages of developing water-power usually associated with canals. It will be possible to pass all the water direct into the river Jhelum at Bong regulator. By this means it is possible for a

closure to be effected throughout the remainder of the canal without the power station having to be shut down.

There are also certain technical advantages in having Mangla close to Rasul and by means of Mangla and Rasul power stations, it will be possible for a greater output to be obtained from Jogindernagar power station, not only during the monsoon period, but also during the winter period when the supply of water is low in the Uhl river at Brot.

Scheme No. 3—This provides for the interlinking of the existing Shahdara Thermal Station with the Grid System in order to afford the advantages of co-related operation of thermal and hydro power stations.

It would also be possible to feed the Lahore Electric Supply Undertaking in summer from Jogindernagar when sufficient water would be available there, thus causing a great saving in the annual coal consumption.

The Thermal Plant at Shahdara would be operated only during low water period at Brot.

Scheme No. 4 Jullundur-Ludhiana-Ferozepore Transmission and Distribution Project—This provides for the replacement of existing 33 KV line from Jullundur to Ludhiana by a 132 KV circuit and erection of a new 132 KV line from Jullundur to Ferozepore. It also provides for the erection of a 66 KV line between Ludhiana and Ferozepore via Jagraon and Moga and a single circuit 66 KV spur line from Ludhiana to Khanna. Step-down grid substations of suitable capacity will be erected at all these stations. The scheme will also provide additional gain of duplicate grid supply to the important towns of Kasur, Ferozepore, Moga, Jagraon and Ludhiana and afford maintenance facilities to the various sections of the transmission lines.

This project covers the electrification of the following towns and their suburbs :—

Place	*District*
1. Moga	Ferozepore.
2. Moga North Rural (Zira and Dharamkot and 6 villages) ..	Do.
3. Moga West Rural (Talwandi Daroli Salvie, etc., etc.). ..	Do.

	Place	District
4.	Moga East Rural (Kapura, Mohana, Dhulkote, etc.) ..	Ferozepore.
5.	Jagraon	Do.
6.	Jagraon West Rural (Ajitwala, Ghulam Khan Khokri, etc.)	Do.
7.	Jagraon South Rural (Riakote and about 10 villages)	Do.
8.	Ludhiana East Rural (Dholewal, Dhand and Kalan, Sarhowal, Kohara Bhimwala, etc.)	Ludhiana.
9.	Ludhiana West Rural (Bheriwal, Fatehpur Badowali, Bullanpur, etc.)	Do.
10.	Khanna	Do.
11.	Samrala tehsil (about 7 villages)	Do.

Scheme No. 5—This scheme would provide for an additional pipe line and one 12,000 kW pelton-wheel generating set with associated switchgear at Jogindernagar.

The plant would be used for developing additional power which in the cold weather period during the shortage of water at Brot will be supplied from the Power Stations at Rasul, Shahdara and Mangla.

The scheme will provide additional power to meet the further development of load on our existing grid system and also supply new towns covered by transmission and distribution schemes Nos. 1 and 4 which are being supplied under the first five-year plan.

Schemes 1, 2, 3 and 5 will enable the present limit of primary power of approximately 20,000 kW. to be increased to approximately 54,000 kW.

With the large expansion in the electrical generation and distribution schemes in the province, the work of the Electric Inspectorate which consists of one Electric Inspector and his staff and is responsible for the administration of the Indian Electricity Act, 1910, will increase considerably and it is proposed to reorganise the Inspectorate by making substantial addition in the staff including provision for a Chief Electric Inspector and another Electric Inspector.

The approximate cost of the schemes is given below :—

(In thousands of rupees)

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five-year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
10	Rasul Hydel Tubewell-cum-Sialkot Gujranwala-Lyallpur-Rawalpndi Transmis-sion and Distribution Project.	Special priority	5,75,26	1,04,90	6,80,16	19,52
	Deduct amount charged to Scheme No. 3 (Irrigation)		2,88,09	..	2,88,09	..
			2,87,17	1,04,90	3,92,07	
11	Jullundur-Ludhiana-Ferozepore Transmission and Distribution Project.	Particular area	1,66,66	32,53	1,99,19	9,61
12	Linking of Shahdara Thermal Station with the Shalamar Grid Sub-station.	Ditto ..	33,90	6,56	40,46	1,90
13	Development of 10,000 kW at Irrigation Branch Headworks at Mangla.	Ditto ..	1,45,24	29,59	1,74,83	8,39
14	Addition of a pipe-line and a 12,000 kW Generating Set at Jogindernagar.	Ditto ..	60,84	12,10	72,94	3,47
	Total—Electricity		6,93,81	1,85,68	8,79,49	42,89
15	Reorganisation of the Electric Inspectorate	All Province	..	5,00	5,00	1,00
	Total ..		6,93,81	1,90,68	8,84,49	43,89

CHAPTER IV

Afforestation and Anti-erosion measures

The Punjab, like the rest of India, is and probably will always remain predominantly agricultural; reconstruction must therefore centre round the land itself which is the basic resource which we must foster and conserve to the best of our knowledge and ability. Soil erosion and failure to conserve water are the two main causes of agricultural poverty in the major part of the province. The ultimate object of the Forest Department schemes is to check and restrict soil erosion and to conserve rainfall so as to make more water available for irrigation, agriculture, etc. In view of the enormous amount of damage and deterioration which is going on throughout the province, except perhaps the irrigated colony lands, due to uncontrolled surface drainage, this objective can only be attained by effecting radical changes in the present uses of land, both waste land and cultivated area.

2. The first scheme in the Forest Department programme relates to the reclamation of eroding cultivation and of ravined lands. Very large blocks of so-called *darrar* lands badly cut up by deep ravines have rendered cultivation impossible and the individual cultivator single-handed has often abandoned the struggle to save his land from the ever-spreading gully. A few instances of reclamation work carried out by co-operative societies under the guidance of the Forest Department have shown that with proper guidance and co-ordination the community can save its own land. With the aid of earth-moving machinery such as the Army is now familiar with, such work becomes correspondingly easier and quicker. Heavy earth-moving equipment consisting of bull-dozers, terracers, subsoilers and other specialised equipment will be required and must be purchased abroad unless the Army can make suitable surplus war material and machines available as early as possible. The scheme is expected to reclaim 150,000 acres of now useless *darrar*, and to increase the productivity of 350,000 acres of poor and unterraced land already threatened with erosion. The areas in which large blocks of *darrar* land occur are incidently those which have done best in recruitment, namely, Rawalpindi, Jhelum, Attock, Gujrat, Hoshiarpur and Ambala so that whatever reclamation is effected will be a direct contribution towards the resettlement of ex-servicemen.

DARRAR OR RAVINED LAND



The beginning of serious ravining by gullies which start on badly levelled fields or from paths across grazing grounds



A later stage when all that is left of the original plateau is a few pinnacles of the original soil

The manual labour required to complete the work of these machines can best be provided by the demobilised men themselves. There are proposals to form District Pioneer Companies which will retain each man's services until a dwelling place is ready and his land fit to till. These District Pioneer Companies together with a Provincial Headquarters Unit which would be responsible for the up-keep and working of the machinery could all be managed on a semi-military basis. An efficient workshop unit which could travel from District to District would be essential. The proposed machinery Companies and the Auxiliary District Companies could be officered partly by techincally trained men who would control the field work in collaboration with the local Forest Department's staff while the discipline, housing, rations, and clothing could be looked after by military officers. In each district where this type of work is visualized and where District Sailors', Soldiers' and Airmen's Boards are already established these should provide a nucleus around which the District organisation can be built. Where co-operative societies for land reclamation have already been formed these would be of great value and would serve as centres for demonstrating the benefits as well as the difficulties of the new phase in land reclamation.

3. The next item in the programme is the reclamation and improvement of waste lands to make them more productive in terms of timber, firewood, fodder, grass, thatching grass, resin and gum extraction and the many other similar items of minor forest produce which can add to the villagers' income. In order to do this however the one essential factor is the control of grazing. At present practically all the village waste land in the province is deteriorating and lapsing into treeless and unproductive desert owing to the incessant and persistent damage caused by uncontrolled grazing. Along the bed of every torrent, small stream and large river in the province there are vast areas of land now quite unproductive. Given protection from grazing, and an energetic planting programme, such as has already been adopted by several hundred of co-operative societies, these riverbeds can to a great extent be made productive. Particularly below the Hoshiarpur and Ambala Siwaliks these torrent beds are capable of producing several million tons of sissoo which is probably the best wood in the world for general construction, furniture and agricultural purposes.

4. The third scheme provides for the scientific management of all the avenue trees in the province whether they belong to

the Irrigation Branch, District Boards or the Public Works Department, Buildings and Roads. The recent so-called firewood famine need not have been so severely felt if these various departments and public bodies who own avenues had taken timely steps to make available to the towns the many dead and dying trees in their avenues. The object now should be to ensure that all waste land on the edges of roads, canals and railways is fully stocked with young trees. The watering and protection of these over many miles of land which is difficult to protect, will require a considerable staff, but the return which the Punjab will secure cannot be expressed in terms of rupees alone, because benefits of sound arboriculture include not only cash return but also improved amenities of shade, shelter and beauty.

5. The conservation of the vital water catchment areas of the Punjab rivers holds great importance for the Irrigation engineers and for many years the Central Board of Irrigation has been suggesting more effective conservation measures in the high hill catchments which serve the major canals. Now in addition there is an ambitious programme of high dams. Each of these dams will block the passage of a river whose load of silt and sand has previously been carried out either to the sea or spread afar by the irrigation water. With the complete stoppage of the stream flow its entire load of silt, sand, pebbles and boulders will be dumped on the bottom in the reservoir behind the dam.

6. The load of silt and sand carried by the Beas and the Sutlej is particularly bad in times of heavy flood when the snow melting in the high hills combines with torrential downpours and heavy erosion damage in the foothills. The Bhakra dam project on the Sutlej is already in hand and plans for others on the Giri, Beas and Ravi are being prepared. Every effort must therefore be made to ensure that catchment areas above dam sites are in the best possible condition to reduce siltation. This entails much stricter control of grazing than has ever before been attempted, and cancellation or commutation of grazing rights which are found to be harmful. In the case of Kangra district, particularly, a radical reduction in the number of grazing animals is necessary. It has recently been computed that Kangra now holds 1,000,000 livestock although it is capable of feeding only 200,000 properly with the existing facilities for grazing and grass cutting.

7. Next, there is the reclamation of *thur* land and water-logged areas. Neither of these are strictly speaking forestry problems, but much of the land which has gone out of cultivation owing to its heavy salt content or owing to water-logging is in such a bad condition that it is unlikely ever to be rendered fit for cultivation and can at best be expected to produce a tree crop. Trees in many cases will be a means to an end because their very presence assists to re-establish a productive soil and a better drainage. Where irrigation water is available *thur* salt can be cancelled by growing two or three crops of rice, then putting it under trees for a number of years. Similarly in water-logged land when drains are first opened a tree crop may give a better return than any field crop would in the first few years during which drainage is being introduced.

8. The last but by no means the least important of the Forest Department's proposed activity is in establishing wind-breaks and shelter-belts to control the movement of wind-blown sand. Every one must be familiar with the tragic tale of the American "Dust Bowl", where ill-considered ploughing of natural grass-lands and failure to provide shelter-belts in a hot and wind-swept country somewhat similar to our southern Punjab, led to extremes of poverty and suffering which have been ameliorated to some extent by the Federal Government's action in planting a vast number of narrow shelter-belts along field borders, roads, railways, and waste lands to form a defence against the prevailing wind. Unless some similar project is worked out for our desert fringe Districts of Gurgaon, Hissar, Sirsa, Ferozepore, Fazilka, Multan and the vast tract of the Thal desert between the Indus and the Jhelum, increasing poverty and aridity in this already treeless tract is unavoidable. Just how far such a programme can actually make land available for ex-servicemen is not yet clear, but the first step is to demonstrate to the residents of these areas the value of shelter-belts of trees, and in areas where trees cannot be grown, wind breaks of kana grass can be used to stop the shifting sand.

The Forest Department proposes to carry out contour bunding along the Punjab desert-fringe districts with the co-operation of the Agriculture Department in working out details of land use and crop production in the reclaimed areas.

9. The 5-years' programme outlined above envisages the employment of very large numbers of men for labour, and the

expansion of the technically trained staff. These developments have already been anticipated to some extent, and the training colleges for Officers and Rangers at Dehra Dun and Foresters at Ghoragali are being expanded. It is hoped that many of those who would be selected for training will be ex-servicemen but apart from these higher grades of technically trained officials there will also be a big demand for ex-servicemen in posts of daroghas, forest guards and co-operative society guards.

10. The approximate cost of the schemes is given below :—

(In thousands of rupees)

Serial No.	Scheme	Category of Scheme	Approximate cost of the Five-year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
16	Purchase of machinery for training and experimental purposes.	Special priority	2,00	..	2,00	..
17	Cadre expansion ..	All-Province	9,00	19,00	28,00	7,00
18	Planting of canal and roadside avenue trees.	Ditto ..	16,00	..	16,00	..
19	Soil Conservation ..	Particular area	1,54,00	..	1,54,00	..
	Total ..		1,81,00	19,00	2,00,00	7,00

CHAPTER V

Agriculture

"Those who govern and those who aspire to govern must never allow themselves to forget that India's wealth in an overwhelming degree is her agriculture and that upon the fields of her cultivators is founded the whole structure of India's economy. The peasant now as ever is the chief source and creator of both her wealth and her greatness and of him it may with truth be said that he is India." LORD LINLITHGOW

1. Agriculture is the basic industry of the Punjab. It not only affords employment to the bulk of the population but also produces goods which in this Province far exceed in value those produced by all the other industries combined. In fact, agriculture forms the foundation upon which most of our industries are built, and a large number of persons engaged in the transport and other trades depend for their livelihood upon the volume of production from agriculture. Besides, "the agricultural population remains for humanity a reservoir of energy capable of preserving the nation from rapid human wastage which may result through excessive growth of industry". The development of agriculture therefore occupies an important place in the Punjab's post-war plan.

2. The Punjab Agricultural Department has been in existence for nearly four decades. Broadly, its main functions are—

1. Agricultural Education.
2. Agricultural Research.
3. District demonstration and propaganda.

The Agricultural College and Research Institute at Lyallpur can justly claim credit for most of the agricultural education and research done in the province. The Department's district staff has also done very useful work not only in training the rural population in improved and scientific methods of agriculture but also in demonstrating and explaining to them the results of useful discoveries made by agricultural research. The practical results which have followed the application of science to agriculture are considerable. At a very moderate estimate it can be claimed that due directly to the work done by the Agricultural Department the cultivator is deriving an annual additional income of not less than 3½ crores of rupees per annum from three crops only, i.e., wheat, cotton and sugarcane. The Five Year Plan of the Agricultural Department aims at further

increasing the benefit of application of science to agriculture and at taking the findings of agricultural research to the home of each cultivator in the province. The programme is divided into four sections :—

(*a*) General.

(*b*) Agricultural Education.

(*c*) Agricultural Research.

(*d*) Extension of District Demonstration and Propaganda.

3. *General*—In recent years the Agriculture Department has taken great strides and the work of the headquarters office will increase considerably when this Plan is put into execution. Provision has, therefore, been made for the strengthening of the headquarters office including the creation of two posts of Assistant Directors, one for research and education and the other for district work.

Some schemes under this head are exclusively for the benefit of ex-servicemen and will be referred to in Chapter XVI.

One of the methods of increasing the production of land is the extensive use of manures in order to induce farmers to take up artificial fertilizers and compost. It is proposed to make available for sale to farmers ammonium sulphate at 20 per cent below market price. It is also proposed to popularise the use of compost by selling it to farmers at reduced rates. Any consequent loss in the income of Municipal Committees will be made good by subsidies.

There are 3½ lakhs of wells, mostly masonary, used for irrigation purposes in the Punjab. It is proposed to encourage the sinking of 1,500 more wells, per annum, by giving a subsidy of 20 per cent of the total cost of a well but not exceeding Rs. 300 per well to agriculturists. This will be in addition to any *taccavi* loans they may be able to obtain from Government in the usual way. It is proposed by this means to increase well irrigation by 18,000 acres.

4. *Agricultural Education*—For higher education in agriculture the Punjab Agricultural College, Lyallpur, can admit 100 students every year for a Degree Course. The College is well equipped but some of its sections do not possess adequate facilities for teaching and research. It is proposed to provide more adequate staff for teaching and research in agricultural engineering, agricultural economics, English, agricultural statistics, fruit culture and fruit preservation, poultry, bee keeping, dairying, vegetable gardening, etc.

With the expansion of the research work and creation of a number of sections in the college it has been considered necessary to appoint a co-ordinator of Research in order to infuse the spirit of team work in all the research workers so that there is no overlapping or wastage of energies. The Co-ordinator will combine in him the duties of Principal of the College as well.

Rural science and agriculture are being taught in some of the primary, middle and high schools in the province and the Agricultural College, Lyallpur, holds Teacher Classes to which only 30 teachers are sent annually to receive agricultural training for teaching in those schools. Arrangements will be made to admit at least 100 teachers every year to the Teacher Classes.

A number of other special courses are also held at the Agricultural College. The most important is the Vernacular Course of one year's duration which is attended by 100 students every year. In order to meet the growing demand for this class of trained men it is proposed to arrange such classes at seven other centres at the headquarter farm of each Deputy Director of Agriculture. Provision is made to admit every year at least 60 students to the six months' advanced course in fruit and vegetable preservation at Lyallpur. A Mali Class is also being conducted at Lyallpur in the interest of the Punjab Fruit Growers who stand in need of technical skill and supervision. It is proposed to attract candidates for this class by providing 50 scholarships of the value of Rs. 25 per annum each.

The laboratory accommodation in existence at the Agricultural College was designed and constructed about 35 years ago. With the improvement and development that has taken place since, the present laboratory accommodation is not only too crowded but also obsolete. It is proposed to provide new laboratory accommodation.

Provision has also been made for special staff consisting of one Librarian, one Assistant Librarian, one Agricultural Estate Officer and a Curator for the College Museum and Herbarium as well as for the construction of additional bungalows and buildings for the staff, etc.

It is proposed to send one student abroad every year for higher studies and a research scholarship tenable for two years of the value of £250 with free passage either way has been provided.

5. *Agricultural Research*—Although the scientific researc work into problems of agriculture carried out at Lyallpur and other sub-stations has already yielded valuable results, a good deal has yet to be done. It is proposed to expand the activities of the various research sections of the department by extending the facilities and scope of their work to enable a comprehensive programme of research covering all areas of the province to be undertaken.

The Cereals Section has so far devoted most of its attention to wheat and rice, but practically no work has been done on other important cereal food crops like maize, pulses and barley due to lack of the necessary facilities and staff. Provision has now been made for research on these crops. Staff has also been provided for pure seed production, for research in hill cereals and for intensifying research work on bajra, gram and tobacco. The Mycological Section is being re-organised for carrying out further research in plant diseases and the fodder section is also being strengthened.

Sugarcane is an important crop in this province. As a result of work so far done with financial aid from the Imperial Council of Agricultural Research, a number of improved varieties have been evolved which give much higher yields than the indigenous canes, and in certain cases are an improvement on the Coimbatore varieties. An independent Sugarcane Section is proposed to be set up to enable still better varieties of cane to be evolved and practical results achieved at the Research Station to be carried to cultivators' own lands without loss of time.

Fruit and vegetable cultivation is a specialised branch of agriculture. The Fruit Section is being considerably augmented for experimental work as well as for giving timely advice and assistance to fruit growers, locating trees of outstanding merits, utilizing them for propagation nursery plants on a large scale for supply to the public and for testing the various varieties in different zones. Research on vegetables has only recently been started. The present staff is too meagre to tackle the numerous breeding and production problems of the large number of common vegetable crops and it is proposed to provide adequate staff for the purpose.

Regular and intensive research on cotton was started at Lyallpur as early as 1925 and several varieties have been evolved which have assumed commercial importance in this country.

With a view to bringing about further improvements it is proposed to establish a Cotton Research Institute at Lyallpur with subsidiary breeding and sub-stations on the lines of the Cotton Research Board of Egypt. This will deal with all aspects of cotton improvement, including breeding, agronomy, physiology, pests and diseases, etc.

In order to investigate, supervise and co-ordinate methods of control against damage caused by rats, etc., and also to organise anti-vermin and anti-pests campaigns, it is proposed to organise a strong Plant Protection Service. The Entomological Section is to be expanded considerably. Provision has been made for research in regard to—

(1) Apiculture,

(2) Lac Culture.

(3) Biological control of insect pests of crops and fruit trees, and

(4) Insect pests of rice crops, hill fruits, domestic animals and poultry birds.

The work of the Chemical Section is proposed to be intensified for research on water-requirements-of-crops under different conditions, effect of physical factors on loss of water from soil, and economics of different systems of irrigation farming and carrying out soil surveys which are a necessary prelude to the development of culturable waste lands. Arrangements are also being made for research on manures both organic and inorganic, animal nutrition problems and quality of cultivated fodders and natural grasses in the Punjab.

Work on Animal Nutrition is being done for the last 23 years. The first few years were spent in developing the technique and in arranging the equipment required for digestibility trials. Then actual digestibility trials on animals were undertaken, with a view to finding out comparative food values of the Punjab feeding stuffs and to the application of these fundamental data for determining the nutritional requirements of milch cows and working bullocks. But some of the most important problems, such as biological values of protein for maintenance and milk production, energy requirements of working animals. comparative feeding values of roughages such as rice, straw and wheat bhusa, possibilities of silage and suitable crops for silage making, etc., have still to be tackled. The knowledge of the fundamental qualities of fodders and grasses is intimately connected with animal husbandry, for the preparation

of a balanced ration for the livestock in order to improve their quality and production, depends upon accurate knowledge about the feeding of animals.

Much work has been done by the Bacteriological Section in connection with berseem culture, but still our knowledge about pathogens is rather meagre and investigations in connection with plant protection work needs immediate attention. Of all the means for increasing crop production, the surest and most easily manageable is the application of manures and fertilizers. The need for development of the composting work has already been recognised by Government and schemes have been started for the preparation of composting urban and rural wastes. This has been taken up only on a temporary basis in connection with the "Grow More Food" campaign. It is proposed to continue this work.

Provision has been made to establish a Section of Agricultural statistics as the application of mathematics to agriculture has introduced an entirely new factor into scientific agriculture.

Agricultural Engineering forms an important section of the Department and deals with lift irrigation, well-boring, implements and workshop. In order to meet the increased demand in all spheres of its activities it is proposed to enlarge and divide the Section into three branches (1) Agricultural Machinery, implements and college workshop, (2) Lift Irrigation and well-boring Section, and (3) Soil Conservation Division.

Section No. (1) will deal with important problems like capacity of draught cattle in relation to implements they are required to draw, improvement of indigenous implements and designing improved implements.

Section No. (2) relates to well-boring work. The present staff is inadequate to deal with the rapid and huge developments that are expected in the post-war period.

The Punjab Marketing Section has been in existence only for the last ten years and during this period have carried out Marketing Surveys and written Reports on almost all important agricultural commodities and have thus become a store house of market information which proves to be of immense value in price control, trade regulation, planning, etc. Their services have been freely utilised by officials and private individuals in the sale and purchase of agricultural produce and in first-hand information of market conditions of various commodities. With

the present skeleton staff it has become very difficult to cope with the ever-increasing survey, advisory and development work. In order to maintain up-to-date information with regard to production imports, exports, prices, etc., and to develop the grading work, schemes have been drawn up, which will bring about marked improvement in the market conditions of the province. Provision has also been made in various schemes to deal with the research and development of poultry, game and fisheries.

6. *Agricultural Extension—District Work Demonstration and Propaganda*—At present there are 8 Deputy Directors of Agriculture in the province stationed at Rawalpindi, Lyallpur, Montgomery, Multan, Jullundur, Gurdaspur, Hansi and Ambala. This number is insufficient to meet the future needs of the province and it is proposed to create four more circles each in charge of a Deputy Director of Agriculture. Besides, the number of Agricultural Assistants will be considerably increased. At present on an average as many as 323 villages form the charge of one Agricultural Assistant. It is physically impossible for the subordinate staff on the District work to come into contact with each and every cultivator and take findings of research to him. Agricultural Assistants must be considerably increased and it is proposed that there should not be more than 50 villages under one Agricultural Assistant.

It is proposed to have one experimental farm at the head-quarters of each Deputy Director of Agriculture. Seven such Farms already exist and 5 more will be established. This will provide for carrying out experiments in each Circle with a view to testing the suitability of various varieties of crops or of practices for different regions. At the experimental station in each circle, specialist staff is also being provided which would conduct preliminary investigations with regard to special problems of the area. In all these regional research stations, local problems will be studied in consultation with the experts at Lyallpur and work conducted under their guidance. Each Circle will also have at least one 500 acre seed farm for large scale production and distribution of pure seeds and a 100 acre demonstration farm in each district.

The necessity of having mixed farms need not be over-emphasized. Mixed farming implies the ordinary system of growing crops as well as keeping dairy cattle, goats, sheep, poultry etc. No data at present exist about the economics of this

system of farming. It is, therefore, intended to have three 200-acre mixed farms, one for the west, one for the east Punjab and the third for the Canal Colonies.

It is also proposed to have one large experimental farm for power farming, with a view to working out the economics of mechanical cultivation. To give widespread publicity to the research and experimental work of the Department it is proposed to set up a separate publicity Section. This Section will deal with the drafting of leaflets, publishing of articles in newspapers, editing the college magazine, a departmental journal and other publications.

The approximate cost of the schemes is given below :—

(In thousands of rupees)

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five-year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
	(a) General					
20	Strengthening of the Headquarters Office	Special priority	30	2,68	2,98	62
21	Facilities to ex-service-men for the purchase of improved seeds, agricultural implements and equipment at concession rates.	Ditto ..	..	1,53,75	1,53,75	23,25
22	Imparting free education in the B.Sc. (Agr.) Course at the Punjab Agricultural College, Lyallpur, to the sons of ex-service-men.	Ditto ..	..	84	84	24
23	Use of Artificial Fertilizers	All-Province	..	15,50	15,50	5,00
24	Subsidies for compost-making	Ditto ..	..	6,98	6,98	1,50
25	Subsidies for sinking of wells	Ditto ..	..	22,05	22,05	5,56
26	Subsidies for improved nurseries for the benefit of ex-service men	Ditto ..	..	8,10	8,10	..

(In thousands of rupees)

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five-Year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
	(*b*) Agricultural Education					
27	Additional staff for the Agricultural College, Lyallpur	Particular area	2	1,94	1,96	45
28	Special courses in Agriculture	All-Province	3,25	4,68	7,93	98
29	Fruit Preservation Classes	Particular area	2,20	2,27	4,47	47
30	Training of *Malis* ..	Ditto	2	73	75	19
31	Training in— (*i*) Poultry-keeping, (*ii*) Bee-keeping, (*iii*) Vegetable gardening, and establishment of a Poultry Farm.	Ditto	1,00	35	1,35	15
32	Research scholarships for post-graduate study abroad.	All-Province	..	37	37	8
33	Construction of a Veterinary Hospital at the College Estate.	Particular area	11	43	54	9
34	Extension of buildings for laboratory accommodation at the Agricultural College, Lyallpur.	Ditto	30,00	..	30,00	..
35	Appointment of a Director and Co-ordinator of Research.	Ditto	2	99	1,01	22
36	Additional special staff for the Punjab Agricultural College, Lyallpur.	Ditto	1	8	9	8
37	Teaching in Animal Husbandry, Dairying and the extension of the College Dairy.	Ditto	3,48	3,78	7,26	98
38	Extension of the Students' Farm at Lyallpur.	Ditto	1,99	..	1,99	..

(In thousands of rupees)

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five-year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
	(c) Agricultural Research					
39	Research in cereals ..	Particular area	3,50	8,32	11,82	1,77
40	Research in millets (Bajra and Gram)	Ditto	3,70	1,46	5,16	51
41	Research in tobacco..	Ditto	40	32	72	11
42	Research in oil-seeds and bio-chemical technological investigations in oil-seeds and other products	Ditto	17	1,42	1,59	31
43	Agricultural Botany, crop planning, seed testing, development of medicinal plants and special economic crops.	Ditto	12	1,51	1,63	39
44	Establishment of a Cytogenetic Section at the Punjab Agricultural College, Lyallpur.	All-Province	..	1,11	1,11	25
45	Research in Mycology	Particular area	20	2,25	2,45	55
46	Research in fodder ..	Ditto	5	34	39	17
47	Research in sugarcane	Ditto	10	3,80	3,90	82
48	Sugarcane—propagation and field trials of results of research.	All-Province	..	2,11	2,11	55
49	Research in Horticulture	Ditto	1,36	12,04	13,40	3,14
50	Research in vegetables	Ditto	48	2,48	2,96	53
51	Research in cotton ..	Particular area	..	2,45	2,45	86
52	Appointment of a Cotton Factory Inspector	All-Province	..	10	10	

(In thousands of rupees)

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five-year Plan: Capital	Recurring	Total	Annual recurring expenditure at the end of five years
	(c) Agricultural Research—contd.					
53	Entomology—Plant Protection Service	All-Province	10	4,70	4,80	1,02
54	Research in Apiculture	Ditto	5	87	92	44
55	Research in Lac culture	Ditto	4	47	51	24
56	Additional staff for the Entomologist	Particular area	..	1,12	1,12	25
57	Biological control of insect pests of crops and fruit trees.	All-Province	..	2,25	2,25	49
58	Research in insect pests of rice crop	Ditto	..	42	42	9
59	Research in Systematic Entomology	Particular area	..	2,06	2,06	73
60	Research in insect pests of hill fruits	Ditto	..	80	80	28
61	Research in insects and other arthropode affecting domestic animals and poultry birds.	Ditto	..	73	73	26
62	Research in soil physics	Ditto	6	88	94	19
63	Research in soil survey	All-Province	2	69	71	24
64	Research in manures..	Particular area	2	62	64	21
65	Research in animal nutrition	Ditto ..	37	85	1,22	29
66	Investigations on the quality of cultivated fodders and natural grasses.	Ditto ..	2	46	48	16
67	Appointment of clerical staff in the Chemical Section.	Ditto ..	2	13	15	4
68	Appointment of additional staff in the Bacteriological Section.	Ditto ..	2	1,09	1,11	30

(In thousands of rupees)

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five-year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
	(c) Agricultural Research—concld.					
69	Research in parasitic control of insect diseases.	Particular areas.	2	48	50	10
70	Research in composts	Ditto	2	37	39	8
71	Compost work in urban and rural areas	All-Province	..	6,75	6,75	1,47
72	Work in agricultural statistics	Particular area	2	1,02	1,04	22
73	Expansion of the Agricultural Engineering Section.	Ditto	11,30	8,86	20,16	1,83
74	Grading of eggs, popularising the Agmark Products and publicity.	All-Province	16	9	25	9
75	Establishment of a Market Information Bureau.	Ditto	..	1,71	1,71	1,71
76	Poultry research and training	Particular area	35	79	1,14	79
77	Research in game ..	All Province	1	2,87	2,88	62
78	Research in fisheries..	Ditto	2	1,17	1,19	25
79	Research in fish canning	Particular area	4	44	48	15
	(d) District Demonstration and Propaganda.					
80	Redistribution of Agricultural Circles	All-Province	2,50	1,02,31	1,04,81	23,89
81	Experimental Farms..	Ditto	10,35	3,74	14,09	1,26
82	Demonstration Farms	Ditto	9,38	1,52	10,90	44

(In thousands of rupees)

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five-year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
	(*d*) District Demonstration and Propaganda—*concld.*					
83	Seed Farms ..	All-Province	21,25	47	21,72	16
84	Mixed Farms ..	Ditto	7,00	76	7,76	19
85	Power Farming ..	Particular area	5,90	4,25	10,15	87
86	Regional Research ..	All-Province	2,35	1,00	3,35	25
87	Publicity ..	Ditto	..	18	18	18
	Total Agriculture ..		1,23,87	4,22,15	5,46,02	89,63

CHAPTER VI

Veterinary

In the Punjab animal husbandry, control of contagious and non-contagious diseases amongst animals, veterinary education and research are under the unified control of the Director, Veterinary Services, Punjab. Under him are 5 Divisional Superintendents of P. V. S. Class I, each in charge of a revenue division. There are 15 P. V. S. Class II officers known as Deputy Superintendents, 14 in charge of district work and 1 in charge of Grantee farms. There are 331 permanent veterinary hospitals each in-charge of a qualified Veterinary Assistant or Veterinary Assistant Surgeon. Besides, there are 130 permanent outlying dispensaries and more than 1,000 ordinary outlying dispensaries which are visited periodically by the qualified staff. This staff is further assisted by Stock Assistants.

There is also a Government Livestock Farm at Hissar, covering an area of 40,000 acres of land and carrying nearly 10,000 head of domestic animals of various species such as Hissar cattle, Bikaneri and Lohi Sheep, Betal goats, donkeys, etc. The main aim of this Farm is to produce stud bulls of the famous Hissar and Hariana breeds which are well-known for their draught qualities and milking capacity. The average normal output of bulls from this farm is about 600 a year. This farm is further being developed into a research and investigation station for all matters connected with animal husbandry, and animal diseases. Two short courses of six months each are also held at the Farm for the training of Veterinary Compounders and Stock Assistants who, when qualified, are required for work in the hospitals and in the field.

There are five Grantee Cattle Farms in the Nili Bar Colony. Two of these Jahangirabad and Allahabad cater for the famous Sahiwal (Montgomery) breed of cattle which is known for its high milk yield throughout India. One Farm at Qadirabad is of Hissar breed. The fourth is a buffalo farm for the breeding of Ravi and Nili buffaloes and the fifth is the Montgomery Dairy Farm where both Sahiwal cows and buffaloes are maintained. These farms are supplemented by Small Holders Shergarh Grants comprising nearly 218½ rectangles of 25 acres each. There are 223 small peasant grantees, who are required to keep Sahiwal cows under departmental supervision at the rate of 2 pedigree cows per irrigated rectangle.

Veterinary Education in the province is imparted at the Punjab Veterinary College, Lahore, through a four year English course and the diplomates of the College are known as L. V. Prs. This College has now been affiliated to the Punjab University for the Degree of Bachelor of Veterinary Science and the course of study extends over a period of 4½ years.

2. A number of schemes for the improvement of the famous breeds of cattle—Hariana, Dhani, Sahiwal and Dujal, for development of goats and sheep breeding and for the investigation of problems of animal diseases are already in operation. Much lee-way has, however, yet to be made up in the development of animal husbandry, animal nutrition, genetics, diseases, breeding and feeding problems, dairying and other subjects on modern and scientific lines. To this end the post-war schemes of the Veterinary Department have been designed. The schemes are divided under the following heads—

(1) Treatment and Control of Animal Diseases.

(2) Dairy Development and Wool Production.

(3) Live Stock Breeding.

(4) Veterinary Education and Research.

(5) Extension and Re-organisation of Veterinary Supervisory Service.

3. *Treatment and Control of Animal Diseases*—There are 331 regular veterinary hospitals in the province which on the average gives 110 villages to a hospital. In order to reduce the area covered by each hospital to about 60 to 75 villages, 100 more village hospitals are proposed to be opened within a period of five years at the rate of 20 per annum. The District Boards will be given a grant-in-aid of Rs. 2,000 per annum for the maintenance of each hospital. Besides, a grant not exceeding Rs. 12,000 per hospital is to be given to District Boards for the construction of hospital buildings on a 1 : 1 basis. To ensure better service one dresser will be added to the staff of each hospital. The District Veterinary Hospitals will be provincialised and the more important of these, viz., Amritsar, Rawalpindi, Multan, Montgomery, Simla, Rohtak, Jullundur and Ludhiana, will be put in charge of gazetted officers. To assist the Veterinary Assistant Surgeons in these hospitals and for the preparation of specimens of Pathological interest, laboratory assistants will be appointed to each district headquarters hospital after a short course of 4 months training at the Veterinary College, Lahore. To supplement the work of these hospitals 182 First Aid Centres are proposed to be opened in addition to similar centres which are or will be run by the Co-operative De-

partment. These centres will be manned by ex-servicemen to whom training will be given in First Aid Work and necessary equipment provided. So that they may retain interest in the work the ex-service men in charge of these centres will be given an allowance of Rs. 10 per mensem each. Shoeing service will also be provided at these hospitals by the appointment of trained farriers.

For disease control it is proposed to establish a well-equipped vaccine institute at the Punjab Veterinary College, Lahore, for the production of biological products on a commercial basis, viz., Anti-rabic vaccine. Goat Tissue Vaccine, Anti-rinderpest serum, H. S. Vaccine and Rani Khet Vaccine. To control Tuberculosis amongst cattle which in this province varies from 1 to 5 per cent a special staff is proposed to be appointed. Legislation may have to be undertaken for making the testing of cattle against T. B. compulsory. The animals found positive will be branded T. B. and will be taken over by Government and kept and fed in suitable segregation camps. A special staff will also be appointed to carry out a survey of the housing and milking arrangements of cattle and other livestock in villages and towns and to find ways and means of improving them.

4. *Dairy Development and Wool Production*—A Dairy Development Officer will be appointed to carry out surveys and stimulate the development of the Dairy Industry on scientific lines. He will act as an advisory Bureau and will advise the public in general and service and ex-service men in particular in matters relating to Dairying. He will be provided with a small miniature Dairy and a Laboratory with necessary technical staff at the Punjab Veterinary College, Lahore, where he will carry out investigations, etc. He will be assisted by an Assistant Professor of Dairying a Chemist, a Bacteriologist and the other Laboratory Staff in this work. The Assistant Professor will also impart training in dairying to the students of the B. V. Sc. Degree course. In addition he will also hold short courses of three and six months each in Dairying for private individuals and service and ex-service men desirous of taking up Dairying as their vocation, Under this scheme loans will also be advanced on easy terms to service and ex-servicemen for starting their own dairies.

In order to encourage the production of milk and milk products in backward areas, 50 centres equipped with cream separators will be started under the guidance and control of the Dairy Development Officer. The villages in these areas will bring all their surplus milk to the centres and will be paid in cash for

it. The separated milk will either be sold back to the villagers or some other use found for it. The cream will be converted into Ghee which will either be sold locally or in the neighbouring towns.

To encourage sheep breeding and production of wool it is proposed to establish 500 units, each consisting of 1 ram and 50 ewes and to entrust them to demobilised personnel or *bona fide* sheep breeders through Panchayats on conditions of ½ Batai in wool and one male lamb of one year old per annum for five years. A special officer in P. V. S. II will be incharge of the scheme and he would be assisted by ten Inspectors and 20 Stock Assistants in his work.

A small wool development board is proposed to be set up consisting of experts of the Civil Veterinary Department and representatives of wool producers and woollen mills. The Board will establish wool stations in all important wool producing areas to produce high class wool on scientific lines and supply it to Government Weaving Institutes and Woollen Mills. Rs. 1,00,000 will be placed at the disposal of the Board to enable it to organise wool collecting centres, engage shearers, pay for wool to the sheep owners and so forth.

A research station will be set up at the Government Livestock Farm, Hissar, to work out a simple process for converting eggs and milk into powder. It is intended to train ex-servicemen and other interested persons in this trade by holding regular training classes. This would result in cutting down the wastage in eggs and milk throughout the province.

5. *Live Stock Breeding*—It is proposed to establish the following additional breeding farms, to ensure the maintenance and regular supply of pedigree animals of different types :—

(1) Murha Breed Buffalo Farm in Hissar or Rohtak district.

(2) Dajal Cattle Farm in the Dajal Tract, district Dera Ghazi Khan.

(3) Bikaneri Sheep Farm in the Ferozepore district.

(4) Hissar, Gaddi and Biangi Sheep Farms in the Kangra and Hoshiarpur districts.

(5) Lohi Sheep Farm in the Mianwali district.

(6) Beetal Goat Farm in the Gurdaspur district.

Each farm will consist of 600 acres which will not only maintain livestock but also grow fodder for them.

Twenty insemination centres will be set up all over the province with a view to increasing the number of cattle. This

scheme will not only control the production of good milch and draught cattle of the requisite type and strain, but will also reduce the dry periods of the females. The staff will be specially trained and will work under the supervision of the Animal Geneticist stationed at the Government Livestock Farm, Hissar. 450 Stock Assistants will be appointed to advise the livestock owners in regard to the latest methods of livestock improvement and to assist the veterinary staff in the castration of the inferior male stock and scrub bulls and vaccination and inoculation of cattle.

6. *Veterinary Education and Research*—The Government Livestock Farm, Hissar, has all the facilities for being turned into a Research Station where all problems connected with animal breeding, animal diseases and animal nutrition could be worked out on practical lines. It is proposed to establish Research Sections there for investigation on fodder grass and cattle diseases. A special staff for research work on animal nutrition is also proposed to be established to work out feeding standards. Investigations will also be carried out in all nutritional problems in respect of the different breeds of livestock both in regard to their ages and climatic conditions and their feeding with various kinds of foodstuffs.

For the Punjab Veterinary College, Lahore, the following additions are proposed :—

(1) The laboratories of the physiological section will be extended and the staff augmented for the teaching of biochemistry and experimental physiology.

(2) A fully-equipped modern laboratory for anima hygiene.

Fifteen stipends of the value of Rs. 50 per mensem tenable or 4½ academic years will be granted every year to deserving ex-service men or their sons desirous of receiving education at the Punjab Veterinary College, Lahore.

7. *Extension and Re-organisation of Veterinary Supervisory Service*—With the expansion of tbe Veterinary Department in the Post-war period the work of the Veterinary Department will increase considerably and it is proposed to strengthen the headquarters staff by the appointment of specialist officers and suitable staff. It is proposed to have a Deputy Superintendent in each of the 28 districts (exclusive of Simla) by creating additional 9 posts—5 in the first year and 4 in the second year of the plan. The clerical staff in the subordinate offices will also be suitably increased.

The approximate cost of the schemes is given below :—

(In thousands of rupees)

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five-year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
88	Developpment of the Dairy Industry of the Province	Special Priority.	99	7,05	8,04	1,43
89	Production of Biological Products.	Ditto ..	45	1,24	1,69	27
90	Establishment of a Sub-station for research work on animal nutrition at Government Live-stock Farm, Hissar.	Ditto ..	45	86	1,31	19
91	Animal Management ..	Ditto ..	..	47	47	10
92	Establishment of a station at the Government Live-stock Farm, Hissar, for evolving suitable processes for the conversion of milk and eggs into powder.	Ditto ..	13	39	52	9
93	Expansion of the head-quarters Office	All-Province	..	3,91	3,91	91
94	Eradication of Tuberculosis.	Ditto ..	4,48	44,85	49,33	9,19
95	Veterinary Education	Ditto ..	..	1,19	1,19	38
96	Extension of live-stock service in villages.	Ditto ..	..	5,54	5,54	2,01
97	Provincialisation of District Headquarters Veterinary Hospitals	Ditto ..	62	4,11	4,73	86
98	Improvement of veterinary service at veterinary hospitals.	Ditto ..	..	3,19	3,19	1,18
99	Provision of improved shoeing service at District Headquarters Hospitals in the the Punjab.	Ditto ..	..	25	25	5

(In thousands of rupees)

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five-year Plan: Capital	Recurrin	Total	Annual recurring expenditure at the end of five years
100	Appointment of 28 Laboratory Assistants in the laboratories attached to the District Headquarters Veterinary Hospitals.	All-Province	..	45	45	10
101	Increase in the clerical staff of the subordinate offices of the Civil Veterinary Department, Punjab.	Ditto ..	..	40	40	9
102	Centres for Artificial Insemination	Ditto ..	36	3,34	3,70	71
103	Development of wool industry ..	Particular area	1,01	19	1,20	4
104	Extension of Veterinary Supervisory Service.	All-Province	9	2,12	2,21	50
105	Live-stock breeding ..	Particular area	5,90	14,79	20,69	3,03
106	Veterinary Research ..	Ditto ..	34	70	1,04	15
107	Veterinary Education	Ditto ..	43	15	58	3
108	Establishment of a modern laboratory for animal hygiene.	Ditto ..	32	11	43	3
109	Dairy Development ..	Particular area.	1,25	5,80	7,05	1,28
110	Extension of veterinary service in rural areas.	Concentrated Area.	12,00	11,17	23,17	3,72
111	Sheep Breeding and Wool Development.	Ditto ..	1	5,25	5,26	1,09
112	Veterinary First-Aid Centres.	Ditto ..	10	1,29	1,39	26
113	Buildings ..	All-Province	7,48	..	7,48	..
	Total—Veterinary ..	..	36,41	1,18,81	1,55,22	27,69

CHAPTER VII

Co-operation, Rural Reconstruction and Work Among Women

Substantial improvement in the standard of life of the rural masses, if it is to be of a permanent nature, must be through voluntary organisation of the people, and in the special conditions of a largely agricultural province like the Punjab the co-operative method of organisation is probably the best and one deserving of the fullest support from Government. The co-operative movement in this province as in other parts of India till recently concentrated its activities on the supply of credit to the agriculturists. Other aspects of rural economy have received attention only in recent times and societies for consolidation of land holdings, stock breeding, better living, anti-erosion, cho reclamation, etc., have been organised on a fairly large scale. Little has, however, been done with regard to marketing of crops. At the end of the co-operative year 1943-44 there were 26,852 primary societies of which 17,138 were agricultural credit societies and 1,307 non-agricultural credit societies including 739 in urban areas. It is proposed in the post-war period to extend the scope of the co-operative movement with a view to organising the rural as well as the urban population in all aspects of their life.

Co-operative Credit

2. In the Punjab in spite of its being probably the most prosperous agricultural province in India rural indebtedness was extremely high, but agrarian legislation in the last 10 years has enabled the agriculturist substantially to reduce his indebtedness. This has, however, resulted in severe curtailment of his credit with the indigenous money-lender. But for fair crops and high prices of agricultural produce in the last 5 years, the demand for an alternative credit agency would have been very great and when prices go down, as they must sooner or later, this demand will be insistant and Government will have to provide for an alternative form of credit for financing agricultural operations. In spite of the fact that fair crops and good prices in the last five years have resulted in remarkable recoveries particularly in agricultural credit societies there is a large number of village societies in which debts are mostly frozen. It is therefore proposed to take advantage of the existing conditions and consolidate the credit movement. Additional staff for

this is being appointed. Recoveries by conciliation of debts will be pressed forward and liquidation of societies which are not expected to revive will be completed as quickly as possible. After completing this task this additional staff will take up the work of organising more credit societies on sound lines and increasing membership of existing societies. It is hoped that at the end of 10 years at least half the villages in the province will have co-operative credit societies and at least 25 per cent of the cultivators will be members of such societies. The existing system regarding audit and levy of audit fee is being thoroughly examined and it is proposed to put the Punjab Co-operative Union on a sound financial basis with the assistance of grants from Government, if necessary.

Consolidation of Holdings—Co-operative

3. On the 31st July 1944, there were 1,874 consolidation of land holding societies including a number of societies in villages where consolidation had been completed. The Co-operative Department was the pioneer in this work and it is proposed to continue this work through the co-operative organization in sixteen districts of the province—other districts will be taken up by the Revenue Department. It is hoped to expand the co-operative as well as the revenue staff doing this work and thus increase the pace of the work. So far approximately 15 per cent of the cultivable area of the province has been consolidated and it is hoped to double this figure in the next 10 years. (A good deal of the land in the province does not require to be consolidated particularly in the colony areas.)

Consolidation of Holdings—through Revenue Agency

4. The work of consolidation of holdings is also being carried out in certain districts by the Revenue Department under the Consolidation of Holdings Act which was passed in 1936. The Act has been made applicable to the districts of Rohtak, Gurgaon, Sialkot, Gujranwala, Jhelum, Attock, Muzaffargarh and Mianwali. It is proposed to extend the application of the Act to other districts to be determined in consultation with the Co-operative Department.

Cottage Industries

5. Cottage industries are handicapped in various ways and cannot be revived and continued without substantial assistance by Government. This work will be dealt with through the Co-operative Department as far as members of co-operative industrial societies are concerned. Other cottage worker

will be dealt with by the Industries Department. It is proposed to provide technical assistance to members of societies in the manufacture of goods and financial assistance for the purchase of raw materials and equipment and disposal of goods. Facilities for training of members of societies and their children in technical institutions will also be provided. Additional co-operative staff for supervision and control will be provided in addition to the necessary technical staff. It is also hoped to encourage some cottage industries as a subsidiary source of income for agriculturists, e.g., bee-keeping, sericulture.

Co-operative Marketing

6. Efforts so far made in regard to co-operative marketing of agricultural produce have been through some commission shops and two sale societies organised recently. The importance of co-operative marketing is well recognised and it is proposed to deal with this problem on a rather ambitious scale in the post-war period. Special staff for organising sale societies and for supervising and controlling them will be appointed. Adequate finance for making advances against the security of agricultural produce will also be made available with the assistance of the Reserve Bank of India. Up-to-date and adequate godown accommodation will be built by Government and leased at nominal rent to societies. Financial assistance for the cost of staff, rent, etc., will also be given to these societies for a period of years. It is expected that at the end of 4 to 5 years these societies will be self-supporting. It is proposed to organise sale societies at all the important markets in the province with district unions and a provincial federation. Special staff of experts for the higher direction and control of this work will also be provided. These sale societies in addition to marketing the produce of members will sell consumers' goods, fertilisers, agricultural implements and other necessities of life to their members. The existing commission shops and sale societies will be re-organised and it is intended that all these marketing societies will do Pakka Arhat as and when required.

Co-operative Education

7. The importance of training departmental staff and educating non-officials particularly office-holder and members of societies has been recognised in the Punjab since a long time and it is proposed to increase the staff a great deal. It has already been doubled and if necessary further staff will also be appointed. Ultimately it is hoped to start a co-operative

institute at Lyallpur where in addition to short courses a full-fledged diploma course on co-operation will be started.

Anti-erosion

8. A good deal of damage has been done to cultivable lands in the plains particularly in the sub-montane areas as a result of erosion in the hills. This erosion is the result of indiscriminate cutting down of trees and unrestricted grazing in the upper as well as in the foothills. Water comes down the hills very fast and brings a great deal of sand thus making good and valuable land uncultivable. The problem has to be tackled at three different stages. In the upper hills felling of trees and grazing has to be strictly controlled. Village co-operative societies are being organised and the management of village forests is being handed over to them. Working plans are prepared for all these societies, whose work is inspected by technical officers of the Forest Department. In the submontane areas, gulli-plugging and building of small dams has been found to be of great help. Afforestation and plantation of trees and grass is also very useful. The third stage consists of reclaiming lands which have been made uncultivable by sand which has been brought down by hill streams. Lands can in time be reclaimed by planting certain varieties of trees and grass. This also assists in reducing the width of the hill torrents which in some cases begin to flow perennially. On the 31st July 1944 there were 30 Forest, 274 Cho Reclamation and 145 Soil Conservation and Land Reclamation Societies. It is proposed to appoint additional staff for this work and substantially increase the number of such societies. All this work will be done with the technical assistance of the soil conservation officers of the Forest Department. Watbandi on a large scale will also be done in order to conserve rain water. Financial assistance on a large scale will also be given to these societies to enable them to meet the heavy expenditure on building of dams, plugging of gullies, planting of tress, etc.

Medical Aid and Public Health

9. On the 31st July 1944 there were 101 Medical Aid and Public Health Societies although a large number of them were without doctors many of them having gone to the army. These societies employ a doctor on Rs. 50 per mensem. Ordinary medicines are also supplied free to the poor. Government contributes Rs. 600 per society : provided the other Rs. 600 are contributed by the members of the society and/or given by the

local district board. This scheme which was launched in 1938 has proved a success and it is proposed to increase the number of such societies. In order to attract qualified doctors it is proposed to pay them at least Rs. 100 per mensem. These doctors will also be given additional work in connection with public health, examination of school children, etc., and will be paid something extra for it. For this Government contribution will be increased to Rs. 900 per society, the other Rs. 900 being found by the members of the society and/or the local district board.

Consumers' Co-operation

10. Consumers' co-operation is almost non-existant in the Punjab and it is therefore proposed to encourage this type of co-operative activity on a large scale particularly in the urban areas. Additional staff for organisation, supervision and control of consumers' stores will be appointed. Financial assistance will also be given to such stores for a period of three to four years at the end of which they are expected to be self-supporting.

Fruit growing and bee-keeping

11. There is great scope for growing of fruit and keeping of bees in certain parts of the province. The work will be done under the technical guidance of the Agricultural Department. Additional staff for organisation, supervision and control of societies will be appointed. Plants of good varieties will be supplied to members at concessional rates and for this wherever necessary special nurseries will be set up. Financial assistance particularly in regard to transport and marketing will also be given.

Cattle Breeding and First Aid Centres

12. On the 31st July 1944 there were 727 stock breeding societies and 149 first aid centres. Additional staff for supervision, control and technical advice to members of such societies will be appointed. In addition financial assistance for the purchase of Veterinary First Aid boxes and simple medicines will also be given.

Co-operative Transport Societies

13. On the 31st July 1944 there were 9 co-operative transport societies operating on different routes in the province. The number has increased to 14 and it is hoped to organise more such societies for the organisation, supervision and control of which special staff has already been appointed. There is great demand for such societies and many road operators

who have organised themselves into joint stock companies, are desirous of converting themselves into such societies. Further extension will, however, have to wait till the road building pogramme is on its way and additional routes are thrown open to traffic.

Rural Reconstruction

14. It is well recognised that conditions of life in rural areas in India are extremely unsatisfactory and any scheme of Rural Reconstruction must therefore embrace a large variety of activities. These may be summarised as improving the conditions of life, increasing production, obtaining better value for produce, improvement of live-stock and finding of additional sources of income. This list is merely illustrative and by no means exhaustive. Rural Reconstruction work therefore requires a good deal of propaganda and field work. These are at present being dealt with by various departments. Government have now decided that publicity and propaganda should be centralised in a Provincial Organisation. Each department will have the necessary staff for writing bulletins, plays, etc., which will then be handed over to the Provincial Publicity Organisation. Field work, however, will continue to be done by the Rural Reconstruction Department as at present.

The existing cinema units will be maintained and some expenditure incurred on additional equipment. A central drama party will be run jointly by the Co-operative and Rural Reconstruction Departments, the district parties being handed over to the Provincial Publicity Organisation. For production of literature on a large scale additional staff will be appointed. Propaganda through the gramophone will continue as at present. It is also proposed to maintain a set of Rural Reconstruction models at headquarters and additional sets which will be taken from place to place. A scheme for a circulating library has also been approved. Boxes containing 25 to 50 books on different topics of rural reconstruction will be sent to different co-operative societies for use of their members. These will be periodically exchanged with other books. The entire cost of books and about 75 per cent of the cost of transport will be borne by Government. It is also proposed to spend a lakh of rupees a year for awarding prizes for village games and competitions. This, it is hoped, will bring about a more healthy atmosphere

in the villages. Additional staff for the headquarters office will be necessary to some extent.

Better Living Societies

15. The field work is at present being done by a staff of Inspectors and Sub-Inspectors who are in charge of Better Living Societies. The object of these societies is to improve the conditions of life in the villages including prevention of litigation. It is proposed substantially to increase the number of such societies. Special attention will be paid to villages where land holdings have been consolidated and where scope for this work is greater than in most other villages. Additional staff of Inspectors and Sub-Inspectors will be appointed for the organisation, supervision and control of these societies. Some Better Living staff which is at present being paid by the Punjab Co-operative Union to whom a grant is paid by Government will be taken over by the Government. Financial assistance on a contributory basis will also be given to these Better Living societies for improvement of village sanitation, village roads, etc.

Work among women

16. Work among women particularly in regard to thrift, home industries and welfare of women is being done since some time and has been greatly appreciated. It is proposed to increase the staff for this work. There will be one Lady Assistant Registrar for each division, one Inspectress for each district and two Sub-Inspectresses per district. In addition, the number of Lady Welfare Workers will be increased from one to five per tehsil. It is proposed to put Inspectresses in charge of thrift as well as welfare work. Financial assistance for the training of Women in villages at the rate of Rs. 100 per year per Lady Welfare Worker and Sub-Inspectress will also be given. The Domestic Training School at Lahore will be expanded and will train at least 100 workers per year for the first four or five years. The cost of training of at least half the workers will be paid by Government at the rate of Rs. 25 per worker per month for a period of 10 months a year. About half the vacancies for training as Lady Welfare Workers will be reserved for the wives, daughters and near relatives of service and ex-servicemen. It is also hoped to give Lady teachers training in domestic science at this school.

17. The approximate cost of the scheme is given below—

(In thousands of rupees)

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five-year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
114	Co-operative credit improvement and expansion.	Special Priority	23,50	11,55	35, 05	2,31
115	Consolidation of holdings	Particular Area	6,20	12,71	18,91	3,37
116	Industrial co-operation	Special Priority	..	17,50	17,50	4,05
117	Co-operative Marketing	All Province	46,00	24,12	70,12	5,53
118	Educational work ..	Special Priority	..	2,90	2,90	55
119	Anti-erosin, Cho-reclamation and Forest Societies.	Particular Area	..	7,44	7,44	1,22
120	Medical Aid and Public Health Societies	All Province	..	15,75	15,75	4,65
121	Consumers' co-operation	Ditto	..	1,69	1,69	20
122	Fruit growing, bee-keeping, etc.	Particular Area	..	3,19	3,19	32
123	Cattle breeding and veterinary First-Aid Centres.	Ditto	..	2,92	2,92	33
	Total—Co-operation (excluding cost of Scheme No. 120 included in scheme No. 156 of the Medical Department)		75,70	84,02	1,59,72	17,85
124	Propaganda and publicity	All Province	..	18,50	18,50	4,00
125	Scheme for better living	Ditto	..	19,20	19,20	93
126	Work among women	Ditto	..	44,49	44,49	9,32
	Total—Rural Reconstruction.		..	82,19	82,19	14,25
127	Consolidation of holdings through Revenue Agency.	Particular Area	..	89,75	89,75	27,00
	Deduct amount recoverable from land owners.		..	11,45	11,45	..
	Total		..	78,30	78,30	27,00

CHAPTER VIII

Panchayats

In a way the Panchayats are a continuation of the old system which existed all over the province before the advent of British rule. With the coming of the British Government, however, the old system ceased to have any official support. In certain places Panchayats continued either on a territorial or a caste basis; but the system was entirely voluntary, and there was no sanction behind the orders of these voluntary Panchayats, excepting custom and social pressure.

2. The desirability of reviving the Panchayats had always been before the Government. But no practical steps were taken to organise them on a sound basis till 1921 when the first Panchayats Act came into operation. Considerable impetus was given to the Panchayat movement in 1939 when the present amended Panchayats Act was brought on the Statute book. Under this Act the Panchayats have a threefold purpose. They act as a judicial body for the decision of petty civil and criminal cases, secondly, they act as an administrative body for the performance of certain duties with regard to sanitation, etc., which have been laid upon them by the Act, and lastly, they act as a legislative body, and have the right to impose taxes and to pass general orders requiring the inhabitants of the area to perform certain acts for improving the life within the area of the Panchayat.

The number of Panchayats went up from 1,100 to 7,000 between the year 1939 and 1944. About 500 Panchayats have now imposed taxes for common village needs. A large amount of administrative work in the way of improving the roads, providing drains, etc., has been done. Innumerable petty cases have also been decided which would otherwise have involved the villagers in expensive criminal or civil litigation.

5. The increase in the number of Panchayats is dependent to a large extent upon the supervising staff which helps to establish the Panchayats and then to guide them in their work. The present staff of 37 Panchayat Officers and 121 Assistant Panchayat Officers is finding it difficult to supervise the existing number of Panchayats and is quite inadequate to cope with any extension of the department. It is, therefore, proposed

to increase the staff in the post-war period. This additional staff will fall under 2 heads :—

(a) Village Guides,

(b) Supervisory staff.

The Village Guides are a body of trained organisers acting as sellers of ideas of the various departments to the people. Government sanction for employing 45 village guides was accorded in 1942 as an experimental measure in 5 selected Tahsils. From the preliminary reports received it appears that the Village Guides are proving successful in the centres where they are at present working. The number of Village Guides has been raised to 231 during the year 1945-46, and they have been appointed in one selected tahsil of each district in the province.

(a) It is intended that no Village Guide should have more than 22 villages in his circle and on this basis, 1,390 Village Guides are proposed to be appointed on a pay of Rs. 20 per mensem *plus* Rs. 5 as cycle allowance.

(b) It is proposed to consolidate the Panchayats so that each Panchayat area contains on an average 1,000 persons. Ultimately it is expected that 20,600 Panchayats would be formed as against 7,000 already established. Experience has shown that frequent inspections by the field staff are necessary if the Panchayats are to function properly. It is the intention of Government that the entire rural public should be brought under the Panchayat system. One Panchayat Officer and 4 Assistant Panchayat Officers would be required on the average in each tahsil. That is to say, 80 additional posts of Panchayat Officers and 348 of Assistant Panchayat Officers will have to be created. The Panchayat Officers will have to be provided with clerks and peons. On this basis each Assistant Panchayat Officer will have 45 Panchayats in his jurisdiction.

6. The modern tendency is, however, to lay more stress upon administrative and cultural work of the Panchayats, and therefore it has been decided to start cultural centres in each Panchayat and to encourage village works.

(i) *Cultural Centres*—This department proposes to have some 3,000 Panchayatghars built on an average cost of Rs. 2,000, including the provision for wireless sets and other essential equipment. One-half of the cost would be contributed by Government. The total cost to Government spread over 5 years would be Rs. 30 lakhs. This building would be under the charge of

the Village Panchayat and the Panchayat would be assisted in the work of management by the Village Guide. The Panchayatghar would consist of :—

(a) A common room or rooms for men with newspapers, books, and, if possible, a wireless set. Where required, a corresponding room would be provided for women.

(b) There would in addition be a fair-sized hall in which the people could meet for common purposes.

(c) There would be a sports ground together with a garden for women and perhaps a wrestling pit attached to it.

(d) The Panchayatghar should, if possible, contain small permanent exhibits of the different beneficent departments.

Thirteen Panchayatghars are already being constructed in selected districts of the province with a Government grant of Rs. 20,000 from the Provincial Development Fund. A further sum of Rs. 56,000 has also been sanctioned for the construction of 28 more Panchayatghars during the year 1945-46.

(ii) *Village Works*—It is proposed to set aside a lump sum for grants to Panchayats for village works. Government will contribute from this fund every year an amount equal to the amount collected by taxes and fees, subject to a maximum of Rs. 1,000 for each Panchayat every year. The system of grants in this way would encourage the Panchayats to raise funds and to undertake local village works such as the construction and maintenance of village roads and culverts, provision of amenities for common life, such as village libraries, lighting, public gardens and first aid centres, etc. etc. Government are considering a proposal to place Rs. 19½ lakhs this year at the disposal of the Director of Panchayats for disbursement to Panchayats for this purpose.

The approximate cost of the schemes is given below :—

(In thousands of rupees)

Scheme No.	Scheme	Category of scheme	Approximate cost of the Five-year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
128	Construction of Panchayatghars and establishment of Cultural Centres.	All Province	30,00	..	30,00	..
129	Maintenance of village works.	Ditto	..	40,00	40,00	8,00
130	Recruitment of additional Panchayat staff.	Ditto	..	34,92	34,92	9,01
	Total—Panchayats ..		30,00	74,92	1,04,92	17,01

CHAPTER IX

Education

During the last 25 years, there has been tremendous educational expansion in the Punjab and a net work of schools and colleges has spread all over the province. Even so, the existing facilities are still very inadequate, and the demand is continually growing for more schools and colleges of all types to meet the varied needs of the province. This demand can be satisfied only by the provision of funds on a very large scale.

2. In providing the existing facilities, the financial resources of Government, local bodies and privately-managed schools have been severely strained. Very often expansion has taken place without any regard to considerations of efficiency. Schools, especially the Primary, are under-staffed, and the teachers are poorly paid. Equipment and apparatus are generally inadequate. The improvement of existing institutions must, therefore, take priority in any scheme of future development. Government have already taken a step in this direction by reorganising its Subordinate Educational Service on a time-scale basis with very much improved initial salary for all categories of teachers. Government have also provided substantial grants to local bodies to enable them to effect similar improvement. The example set by Government is being gradually followed by privately-managed schools.

3. During the past six or seven years, funds have been scarce owing to war and this Department (although expanding, in some ways and particularly in the provision of facilities for girls' education) has confined itself mainly to internal reforms. These reforms include—

(*i*) An overhaul of the curriculum and syllabuses for the whole school course for boys and girls from I—VIII classes.

(*ii*) The J. V. and S. V. training courses for both men and women have been brought up to date and in line with the new curriculum.

(*iii*) The training of anglo-vernacular teachers at the Central Training College, Lahore, and other Training Colleges has been revised and modernised. A new Diploma in Administration and Inspection Technique will be introduced soon, and those trained teachers who are likely to become headmasters or inspectors will be given the necessary training in this diploma course.

(*iv*) A scheme has been prepared to develop a post-war youth movement in this province. A beginning has already been made this year with a provision for Rs. 1,68,000 recurring.

(*v*) The whole of the Subordinate Educational Service (Men's Branch) has been reorganised and put on a time-scale basis with better starting pay.

(*vi*) Considerable experience has been gained in the comparatively successful campaign against illiteracy.

4. The Punjab Education Department prepared a 35-year plan for the educational development of the province. The main features of this plan are—

(*i*) Introduction of universal compulsory free education, to be introduced between the ages of 6 and 11.

(*ii*) Reasonable provision of education before the compulsory age in the form of pre-primary schools.

(*iii*) Increased provision for secondary and collegiate education for those who are likely to benefit from it.

(*iv*) Expansion of technical, commercial and arts education.

(*v*) Special campaign for adult education.

(*vi*) Efficient medical school service and provision of proper nutrition in needy cases.

(*vii*) A generous system of scholarships.

(*viii*) Increased administrative staff.

This long range plan aims at providing the minimum educational requirements of a civilised nation and is estimated to cost on completion about 30 crores annually. As an integral part of this 35-year plan a short-term plan covering the next five years has now been drawn up.

5. The five-year plan is based on two important principles, viz., first, that the existing educational machinery must be improved to enable it to render better results. Secondly, additional facilities proportionate to the needs at the different stages must be provided.

One of the most important causes militating against educational progress has been the very meagre salary offered to the teachers. In consequence, the teaching profession has not been able to attract really capable and enthusiastic people, who ought to be in charge of the nation's must valuable asset, namely, its

children, during its most impressionable stage. Recognising the importance of an efficient and well-contented teaching profession, the Punjab Government have recently reorganised the Subordinate Educational Service on a time-scale basis with a very much improved starting salary. Government have now also provided substantial grants to local bodies to enable them to effect similar improvements. The privately-managed schools are following the same example. In the 5-year plan provision has been made accordingly for improved scales of salary all round.

Improvement in the existing structure is proposed to be effected in several ways: by raising the scales of salaries of teachers of all categories, by employing 1,500 additional teachers in the understaffed schools, by providing suitable additional accommodation and equipment and by making a very liberal provision to the extent of Rs. 1,09,42,700 for scholarships for poor and deserving students. An analysis of the total expenditure of Rs. 10 crores proposed to be incurred during 5 years indicates that Rs. 3,29,10,000 of recurring expenditure and Rs. 1,64,87,000 of non-recurring expenditure will be incurred on improving the existing institutions. This expenditure of Rs. 4,93,97,000 which is nearly equal to half of the total expenditure will be fully utilized to bring the eductional plant up tc date and to make good the deficiencies which have existed for many years owing to lack of financial provision.

6. The main features of the plan are briefly reviewed below—

Primary Education—Admittedly, the major need is to improve and extend the system of primary education. It is proposed to spend Rs. 1,08,43,000 (recurring) on improving the existing primary schools. It is also proposed to spend Rs. 1,30,43,000 (recurring) on opening additional primary schools at the rate of 600 per year commencing from the third year of the plan. These schools will be located in areas where compulsion is proposed to be enforced. It is proposed to spend Rs. 1,15,29,000 (non-recurring) on improving the buildings and equipment of the existing primary schools and Rs. 44,59,000 (non-recurring) on the new primary schools which will be opened. The total expenditure, both recurring and non-recurring, on primary education will, therefore, amount to Rs. 3,98,74,000 which is nearly 40 per cent of the total expenditure. It is hoped that sites and buildings for the new primary schools to be opened will mostly be provided free of cost by members of the public.

Pre-primary schools—It is proposed to open, as an experimental measure, a few pre-primary or nursery schools in industrial or other areas where they may be most necessary.

Adult Education—While the problem of increasing literacy among children will be tackled by increasing the number of primary schools and enforcing compulsion, the question of promoting literacy among the adult population will also be taken up. For this purpose, 250 schools will be started with part-time teachers to be engaged from among the teachers working in educational institutions and 250 centres with whole-time teachers to be recruited mainly from demobilised servicemen after they have undergone a special training course for this purpose. In order to introduce the habit of reading among literate people, suitable literature and reading matter will be provided free at each centre. Eight Assistant District Inspectors will be appointed to supervise the scheme.

Middle Schools—Improvement will be effected in the existing vernacular middle schools by improving the salary of S.V. teachers, by providing additional accommodation wherever necessary, by making provision for regular annual repairs, equipment and medical service, etc. Furthermore, 480 schools (300 lower middle in the case of boys and 180 primary in the case of girls) will be raised to the vernacular middle standard, so that in the future there will be no such institution as the 'lower middle school'. Experience has shown that the demand for the study of English as an optional subject in the vernacular middle schools has been on the increase. Provision has, therefore, been made that 40 per cent of the new vernacular middle schools should have optional English classes added to them.

School Farms and Garden Plots—Many middle schools have garden plots and agricultural farms attached to them, and these serve a very useful purpose by giving an agricultural bias to education in rural areas and by spreading up-to-date and correct knowledge about practical agriculture among the farmer community in the neighbourhood. It is proposed to extend this facility by starting every year 6 new farms and 8 garden plots.

High Schools—The existing Government High Schools will be improved by the provision of additional accommodation, equipment and educational appliances. Further, 5 new high schools will be opened by Government every year. Provision has also been made for generous grants-in-aid to local body and privately managed schools to enable them to improve their schools on the same lines.

Collegiate education—In respect of colleges, provision has been made for regular additions of equipment and educational apparatus in the case of Government Colleges and for increased grant-in-aid for non-Government Colleges to enable them to function more efficiently and to provide the teaching of science. Provision has also been made for additional accommodation in Government Colleges. It is also proposed to open one college every year beginning with the third year of the scheme.

University education—Provision has also been made to the extent of Rs. 16,50,000 recurring and Rs. 10,00,000 non-recurring for the University of the Punjab to enable it to improve and extend facilities for post- graduate teaching and research.

Training Institutions—It is clear that the existing institutions for the training of teachers will not be adequate to meet the requirements for staff of the new institutions proposed to be started. It is, therefore, proposed to start 20 training schools for vernacular teachers and 1 training college for anglo-vernacular teachers during this period. These institutions will be run on up-to-date lines. In this connection it may be mentioned that the curriculum of training institutions has recently been modernised with the object of improving the quality of teachers.

Medical and health services and free mid-day meals for poor children—Suitable provision has been made in the plans for every schoolboy to be medically examined regularly, although it is feared that it may not be possible to implement the scheme fully owing to paucity of medical staff in the early post-war period. Provision has also been made to extend the experiment of a free mid-day meal for poor and under-fed children. It is proposed to provide a free mid-day meal to about 25 per cent of poor children in 50 primary schools and in 25 middle schools.

Technical education—Provision has been made for a sum of Rs. 9,75,000 to implement such schemes of technical education as may finally be adopted. The question of setting up a polytechnique is also under active consideration.

Administrative efficiency—Inspection is the key note to educational progress. In order to improve the efficiency of the existing supervisory staff, it is proposed to appoint additional staff in the district and in the division and also in the office of the Director of Public Instruction.

Provision has also been made for special staff to carry out educational surveys in respect of the new schools to be established under the scheme.

Visits to foreign countries—It is necessary that the officers of this Department should remain in touch with the educational movements abroad. It has, therefore, been proposed to send out every year two officers of the Education Department to study systems of education in other countries, or to attend special courses in higher education. In this way, educational thought and practice in this country will gradually come in line with other countries.

7. A list of priorities has been drawn up to initiate the preliminary arrangements and to facilitate the adoption of the programme of development. These priorities include the appointment of a special staff at the headquarters and in the divisions, and the opening of training institutions.

8. It is hoped that these plans, besides laying the foundation of a national system of education, will also help in the settlement of demobilised servicemen a very vital problem now that hostilities have ended.

9. These plans involve an additional recurring expenditure of Rs. 1·78 crores in the fifth year of the plan. This is a negligible figure when compared with the post-war educational plans of more advanced countries.

The approximate cost of the schemes is given below :—

(In thousands of rupees)

Scheme No.	Scheme	Category of scheme	Approximate cost of the Five year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
131	Improvements in existing primary schools.	All Province	1,15,29	1,08,43	2,23,72	30,03
132	Improvements in existing middle schools.	Ditto ..	12,75	47,13	59,88	12,42
133	Improvements in existing high schools.	Ditto ..	6,75	18,80	25,55	3,76
134	Improvements in existing colleges.	Ditto ..	27,25	11,25	38,50	2,25

Serial No.	Scheme	Category of Scheme	Approximate cost of the Five-year Plan			Annual recurring expenditure at the end of five years.
			Capital	Recurring	Total	
135	Scholarships in existing institutions.	All Province	..	1,09,43	1,09,43	29,78
136	Providing stipends for trainees in the existing training schools for vernacular teachers.	Ditto ..	..	6,10	6,10	1,22
137	Appointment of additional supervisory staff for existing institutons.	Ditto ..	2,83	27,96	30,79	5,96
138	Opening of new primary schools and adding the V class to the existing boys' primary schools.	Ditto ..	44,58	1,30,43	1,75,01	38,30
139	Opening of new vernacular middle schools.	Ditto ..	38,40	27,89	66,29	11,56
140	Addition of optional English classes to the new vernacular middle schools for boys.	Ditto ..	44	1,79	2,23	1,03
141	Opening of new high schools.	Ditto ..	13,53	7,69	21,22	3,92
142	Opening of new colleges	Ditto	25,11	3,50	28,61	1,79
143	Improvement and extension of the activities of the Punjab University.	Ditto	10,00	16,50	26,50	6,00
144	Opening of Pre-primary schools.	Ditto	1,05	2,26	3,31	1,08
145	Opening of new training schools for vernacular teachers.	Ditto	78,20	61,27	1 39 47	19,59
146	Opening of a new training college for Anglo-Vernacular teachers.	Ditto	8,14	2,96	11,10	80

Serial No.	Scheme	Category of Scheme	Aproximate cost of the Five-year Plan			Annual recurring expenditure at the end of five years.
			Capital	Recurring	Total	
147	Starting agricultural farms and garden plots.	All Province	61	1,06	1,67	53
148	Supply of mid-day meals to poor, undernourished pupils.	Ditto	5	6,37	6,42	1,28
149	Adult education ..	Ditto	2 33	10 24	12 57	2 71
150	Technical commercial and arts education	Ditto	..	9,75	9,75	4,00
151	Educational survey ..	Ditto	4	79	83	..
152	Special study in foreign countries.	Ditto	..	1 00	1,00	20
153	Appointment of additional supervising staff for new institutions.	Ditto	32	5,44	5,76	2 45
154	Priorities ..	Special Priority.	86,41	66 90	1 53 31	20 82
	Total—Education (Except Schemes Nos. 153 and 154 cost of which is included in other scheme).		3,87 35	6,12 60	9,99,95	1 78,21

CHAPTER X

Medical Relief

The Medical organisation of the province affords medical relief to the people through a network of hospitals and dispensaries of which a comparatively large number is located in urban areas. There are 287 hospitals and dispensaries in 202 towns with nearly 4½ millions population as compared with 778 hospitals and dispensaries in rural areas covering a population of over 24 millions scattered in 36,356 villages. There is thus only one medical unit for 30,925 population in rural areas as against one for 15,188 in towns. Besides, hospitals in towns and cities are larger and better equipped than the small units in rural areas. The medical schemes, therefore, largely aim at providing better facilities for medical relief in rural areas and to the widest extent possible.

2. The state of repair of many of the hospitals, some of which are buildings erected originally for other purposes, arrangements for water supply, lighting, sanitation and equipment, the inadequacy of their budgets, and insufficiency of their overworked medical and nursing staff, working constantly against time in conditions of overcrowding, have long been of the utmost concern to Government and the need for the amelioration of these conditions has been kept in view in formulating the schemes.

Medical Relief—Rural Areas

3. In the rural areas it is proposed to open and staff additional dispensaries during the first year of the plan and thus complete the scheme started in 1925 to provide one dispensary for a mean of 30,000 population and 100 square miles area or a total of 375 rural dispensaries in the Punjab. Each of these rural dispensaries is provided with accommodation for 4 in-patients but it is proposed to increase this accommodation in the 6 more important rural dispensaries of each district, so as to equip them with separate Men's and Women's Sections of 12 beds each. These selected rural dispensaries will form centres for group village relief and preventive work.

There are at present 142 dispensaries in rural areas subsidised by Government which are being run through the medium of co-operative Medical Aid and Public Health Societies. It is proposed to open 120 new subsidised dispensaries in the first

year and 50 such dispensaries in each of the subsequent four years. The number of subsidised medical practitioners will also be increased accordingly. A number of villages will thus come within reasonably easy reach of a hospital or dispensary with in-patient acc ommodation.

4. The next position between the villages and the larger towns is occupied by the Tahsil headquarters in all of which the hospital accommodation will be raised to at least 50 beds. All Tahsil hospitals will be provided with a clinical laboratory and X-Ray Department and other facilities. The Tahsil hospitals which have no Women's Section at present will be provided with a separate department and ward for women. The Medical staff at each of these Tahsil headquarters hospitals will consist of 2 male medical graduates, 1 woman medical graduate and 1 licentiate, the latter in charge of the laboratory, with the necessary complement of X-Ray technicians, male and female dispensers, nurses, nurse-dais and menials. The main problem here, as indeed for the scheme as a whole, is the provision of adequately trained nurses. The whole future of medical relief and the benefits to be derived from it will depend, not only on the supply or type of medical men but on the supply, status and standard of education of the women who will come forward to be trained in the various branches of nursing including health visitor's work.

Tahsil Headquarters

5. After the Tahsil headquarters hospitals with their 50 beds, come the District Headquarters hospitals. Each of these will be extended to provide at least 100 beds within the first 5 years of the programme and each District Headquarters hospital will have a fully equipped and staffed Clinical Laboratory, X-Ray and Electro-Medical Department and the accommodation and facilities for advanced surgical maternity and gynæcological work will also be increased. The staff of each district headquarters hospital excluding the Civil Surgeon who will hold the post of Superintendent in addition to his district administrative duties, will consist of 4 specialists—surgical, medical, radiologist and bacteriological and gynæcological all graduates and a pathologist and bacteriologist who will probably at first be licentiates. The necessary nursing, technical, clerical and other staff will also be provided. The question of employing part-time doctors to augment the consultant

District Headquarters

staff will be considered but in any case the medical staff employed will not henceforth be handicapped by the lack of adequate assistance, equipment or facilities, while overcrowding in hospitals especially in outdoor and casuality departments with its resultant inadequate and inefficient service will be avoided.

It is expected that these district headquarters hospitals will be so efficiently staffed and managed that at least some of them will be able to function as extra-mural medical schools, as subsidiary to the existing 2 medical schools and 3 medical colleges—so that a steady and higher out-put of graduates, licentiates, nurses, health visitors and technicians can be maintained.

Medical School for Women

6. With a view to meeting the dearth of women doctors it is proposed to create a new medical school for women licentiates with an intake of 150 students a year.

Cities and Medical Colleges

7. In the cities of Lahore and Amritsar the two medical colleges and their hospitals do not afford either adequate clinical material for the teaching of more students or the accommodation now considered adequate for public requirements, with the result that overcrowding with patients and overworking of the staff are becoming increasingly serious problems. It is, therefore, proposed to provide more indoor and outdoor accommodation at these places, and to build new hospitals for the various specialities such as diseases of children, eye diseases, maternity and diseases of women, chronic and incurable cases, casualities, orthopædics and also a new Tuberculosis Hospital and a Radium Institute. This will raise the number of beds in Lahore to 2,400 and a corresponding increase is proposed in the Amritsar scheme.

It may be noted that these two cities not only cater for the sick from their own districts but also attract cases seeking expert attention from all over the province. These centres will not only train doctors, nurses, health workers and technicians but will also be the headquarters of research sections working throughout the province.

The approximate cost of the schemes is given below :—

(In thousands of rupees)

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five Year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
155	Establishent of 17 rural dispensaries in the Punjab.	Special priority	4,96	2,55	7,51	51
156	Extension of the scheme of subsidised medical practitioners in rural areas.	All Province	..	18,15	18,15	5,28
157	New Tahsil Headquarters Hospital at Nawanshahr (Jullundur district).	Particular area	1,82	1,18	3,00	24
158	Increase in the bed accommodation in District Headquarters hospitals (except those at Lahore and Amritsar).	All Province	45,20	15,00	60,20	5,00
159	Provision of fully equipped clinical laboratories at all District Headquarters hospitals (except those at Lahore and Amritsar).	Ditto	14,74	3,85	18,59	1,35
160	Provision of an X-Ray Department at certain District Headquarters Hospitals.	.. Ditto	12,83	10,24	23,07	3,59
161	Increase in the number of doctors employed in District Headquarters Hospitals (except at Lahore and Amritsar).	All Province	7,80	6,74	14,54	2,25
162	Increase in the number of beds in the Tahsil Headquarter hospitals.	Ditto ..	47,69	11,91	59,60	3,97
163	Provision of clinical laboratories in all Tahsil Headquarters hospitals.	Ditto ..	7,75	3,36	11,11	1,12

(In thousands of rupees)

Scheme No.	Scheme	Category of Scheme	APPROXIMATE COST OF THE FIVE YEAR PLAN			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
164	Provision of X-Ray facilities at all Tahsil Headquarters hospitals.	All province	8,63	5,25	13,88	1,75
165	Increase in the number of doctors in Tahsil Headquarters hospitals.	Ditto ..	14,67	13,73	28,40	4,58
166	Provision of a separate Women's Section at each District Headquarters hospital.	Ditto ..	12,36	38	12,74	11
167	Provision of a separate Women's Section at each Tahsil Headquarters hospital.	Ditto ..	9,12	42	9,54	16
168	Provision of separate Women's Section in six important rural dispensaries in each district (Except Simla).	Ditto ..	53,00	21,15	74,15	7,05
169	Appointment of nurse *dais* in rural dispensaries not having lady doctors.	Ditto ..	–	5,54	5,54	1,11
170	Appointment of nurse *dais* in 250 subsidised dispensaries.	Ditto ..	..	2,96	2,96	59
171	New Government Medical School for women (licentiates) with connected hospitals.	Special priority.	39,47	28,35	67,82	5,67
172	Additional nurses in the hospitals attached to Medical Colleges in Lahore and Amritsar.	Particular area.	3,70	3,72	7,42	1,24
173	Additional nurses for District Headquarters hospitals.	Ditto ..	10,00	16,05	26,05	5,35
174	Additional nurses for Tahsil Headquarters hospitals.	Ditto ..	5,25	12,36	17,61	4,12

Serial No.	Scheme	Category of Scheme	Approximate cost of the Five-year Plan			Annual recurring expenditure at the end of five years.
			Capital	Recurring	Total	
175	Improvement in the medical arrangements and increase in hospital accommodation in Lahore.	Special Priority.	31,00	15,00	46,00	3,00
176	Improvement in the medical arrangements and provision of additional hospital accommodation at Amritsar.	Ditto ..	60,00	24,00	84,00	6,00
177	Establishment of a Tuberculosis Ho pital at Lahore, with a Research Department.	Ditto ..	26,83	7,30	34,13	1,46
178	Opening of properly staffed and equipped Tubeculosis clinics at District Headquarters.	All Province	18,33	10,64	28,97	3,55
79	Opening of a Tuberculosis clinic at each Tahsil Headquarters.	Ditto ..	13,86	11,14	25,00	3,71
	Total—Medical ..		4,49,01	2,50,97	6,99,98	72,76

CHAPTER XI

Public Health

The Public Health Department in the Punjab was organised some two decades ago and during this short period has largely extended its activities in regard to the prevention of disease and the improvement of public health generally. Progress has, however, to some extent been retarded by the non-availability of trained staff and material during the war. It is proposed in the post-war period to put into immediate effect such of the expanding schemes of the department which could not be taken in hand owing to war conditions, to raise generally the prevailing standards of environmental hygiene and sanitation and to provide modern health services which, by minimising risks from disease and death, will improve the health and strength of the people.

2. *Additional public health establishment in districts*—Until recently there was only one District Medical Officer of Health and one Sanitary Inspector in each district. In some districts a Sub-Assistant Health Officer was also appointed. The remaining public health staff, viz., vaccination establishment and other sanitary personnel are District Board employees. Two more Sanitary Inspectors per district have now been added and each district has been given an additional party of sanitary personnel under a Sub-Assistant Health Officer. The Sub-Assistant Health Officers already functioning in some of the districts have been absorbed in this sanitary personnel. These parties are being employed on general public health work and can easily move from place to place on anti-epidemic duty. It is proposed to double the number of these special parties known as Public Health Corps, giving two to each district.

There are at present three Sanitary Inspectors in each district excepting Simla. By giving a Sanitary Inspector to each tahsil 28 more Sanitary Inspectors are proposed to be added. Two Sub-Assistant Health Officers in addition to the two such officers in charge of Public Health Corps will also be appointed in each district.

3. *Maternity and child welfare*— There is a very high incidence of illness and mortality amongst mothers due to child birth and a very large number of children die before they attain the age of one year. No organised or systematic maternity

service exists. Mothers are mostly looked after during pregnancy, confinement and after confinement by indigenous *dais* who are mostly untrained. The number of hospitals and dispensaries is not large enough to be able to give satisfactory attention to the ailments of small children. A certain number of maternity and child welfare centres have been established but their number, 124, is utterly inadequate for the needs of the province. At these centres Lady Health Visitors and trained *dais* are employed. They not only attend to expectant mothers and supervise confinements but also train the mothers how to look after their children so as to keep them healthy. These centres are also Training Centres for indigenous *dais* of the surrounding areas and a very large number of such *dais* have been trained by them. A scheme for the expansion of these centres has recently been sanctioned by which their number will be increased to 232. Out of these 134 will be in rural areas—one for each tahsil. It is proposed to make provision for 134 more centres for the rural areas so as to give two centres to each tahsil.

There is at present only one Inspectress and two Assistant Inspectresses to look after the health centres. With the opening of new centres it will be necessary to increase the existing strength of the inspectorate staff and four more Assistant Inspectresses are proposed to be appointed. It is also proposed to attach a small permanent Health Exhibition to each health centre so as to serve as a nucleus for health propaganda amongst women.

4. *Anti-malaria measures*—It is proposed to launch an intensive anti-malaria campaign and the measures contemplated are :—

(*i*) Treatment of patients suffering from malaria.

(*ii*) The protection of healthy individuals from the bite of mosquitoes infected with malarial germs.

(*iii*) The destruction of infected and non-infected mosquitoes.

(*iv*) Prevention of mosquitoe breeding.

Before the outbreak of the present war arrangements were made under a scheme known as 'taptor' scheme for the supply to the public packets containing 15 tablets of quinine each at a cost of 4 annas through various agencies. This scheme will be revived. The Co-operative Department are introducing some cheap types of satisfactory mosquitoe nets. Arrangements will be made to make them available to the masses in

sufficient quantities. The Central Malaria Institute at Delhi is working at a cheap method of manufacturing pyrethrum solution for the purpose of destroying mosquitoes by spraying. This will also be made available to the public. Suitable measures will be taken to prevent mosquitoe breeding in the areas water-logged due to seepage from canals, rivers and other water collections in the following districts :—

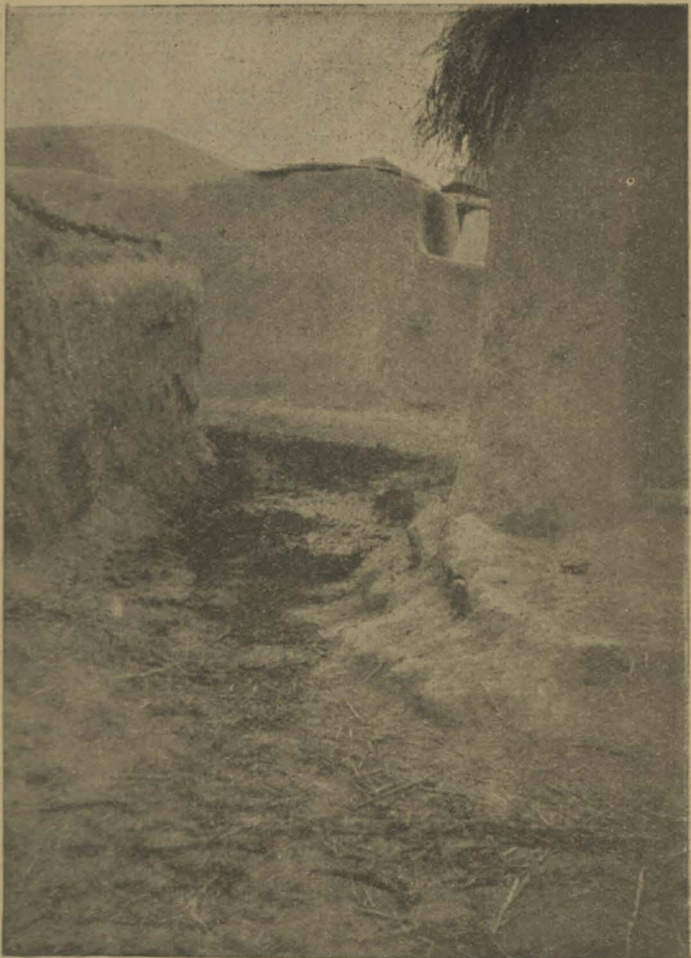
1. Sheikhupura.
2. Gujranwala.
3. Sialkot
4. Gujrat.
5. Shahpur.
6. Jhang.
7. Gurdaspur.
8. Lahore.
9. Ludhiana.
10. Ambala.
11. Karnal.
12. Montgomery.
13. Lyallpur.
14. Hoshiarpur.
15. Mianwali.
16. Jhelum.
17. Multan.

The units of the Public Health Corps and other anti-malaria and public health staff will be responsible for all anti-malarial measures within their respective spheres.

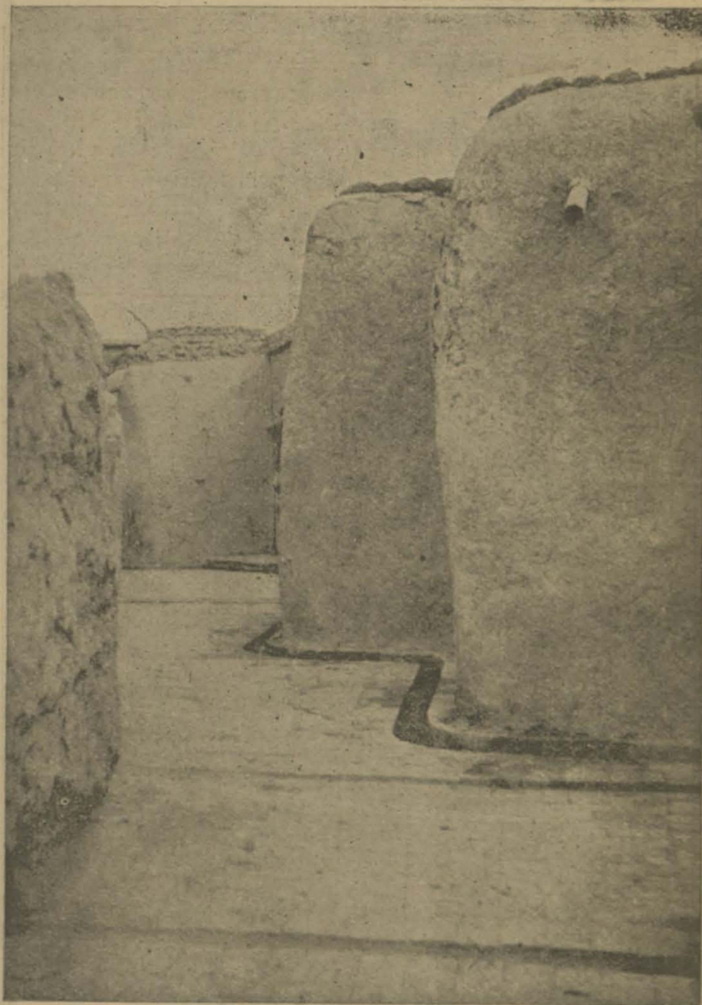
§ 5. *Improvement of water supplies*—Foremost in importance in any public health campaign of development comes the question of the provision of safe and adequate drinking water supply to the people. There are large tracts of the province where there is acute shortage of good drinking water while in many other areas water found is brackish or saline and unfit for human consumption. It is therefore proposed to provide adequate and protected water supply in rural areas, particularly in the tahsils selected for concentrated development and also in some towns, if funds are available.

In certain areas, particularly in large parts of the Hissar and Rohtak districts, the ground water is brackish and the subsoil strata are mostly clayey, hence in many places, even brackish water is scanty. In many parts, where there are no canals or where the canal water supply is inadequate water famines are very common and the people have to use for domestic purposes and drink the foulest water available from filthy ponds but even these often dry up. In these areas, it is proposed to pump filtered canal water where available through long pipe-lines to serve groups of villages, with a small reservoir and a few taps near each village, and a sum of Rs. 24 lakhs each has been reserved in the plan for the Rohtak and Hissar districts.

Another type of problem is met within the submontain districts, the Salt Range and along the fringe of the Suleman



A Dirty Village Lane



An Improved Paved Village Lane

Range. Many villages in these areas are suffering from continual lack of good drinking water and for them water will have to be piped for considerable distances from the nearest suitable streams, springs or wells. Wherever possible, these pipelines will be arranged on a gravitation system, but in certain cases, this will not be practicable as the only feasible sources of supply are below the level of the villages to be served.

Briefly this part of the plan includes provision for the repair and sanitation of about 2,336 existing village percolation wells, construction of 404 new and the reconstruction of 62 old percolation wells, the provision of 54 new boreholes and tubewells, 83 abyssinian tubewells with hand pumps, 24 "new baolis" and 6 cattle tanks, the reconditioning of 5 old water tanks or reservoirs, the provision of self-contained piped water supply schemes for 141 villages with a population of upward of 130,000, excluding special piped rural water supply schemes in the Rohtak and Hissar districts which will probably help to deal with a further population of about 60,000 to 80,000.

6. *Village latrines*—The evils resulting from the unsatisfactory disposal of night soil, e.g., cholera, typhoid, dysentery and hookworm diseases are well known. The proper disposal of night soil in villages can best be done by the installation of some kinds of latrines which will not require servicing. It is proposed to provide such latrines in the first instance in 963 villages of the selected tahsils which have panchayats. The idea is that Panchayats will be able to look after these latrines and see that they remain in good repair.

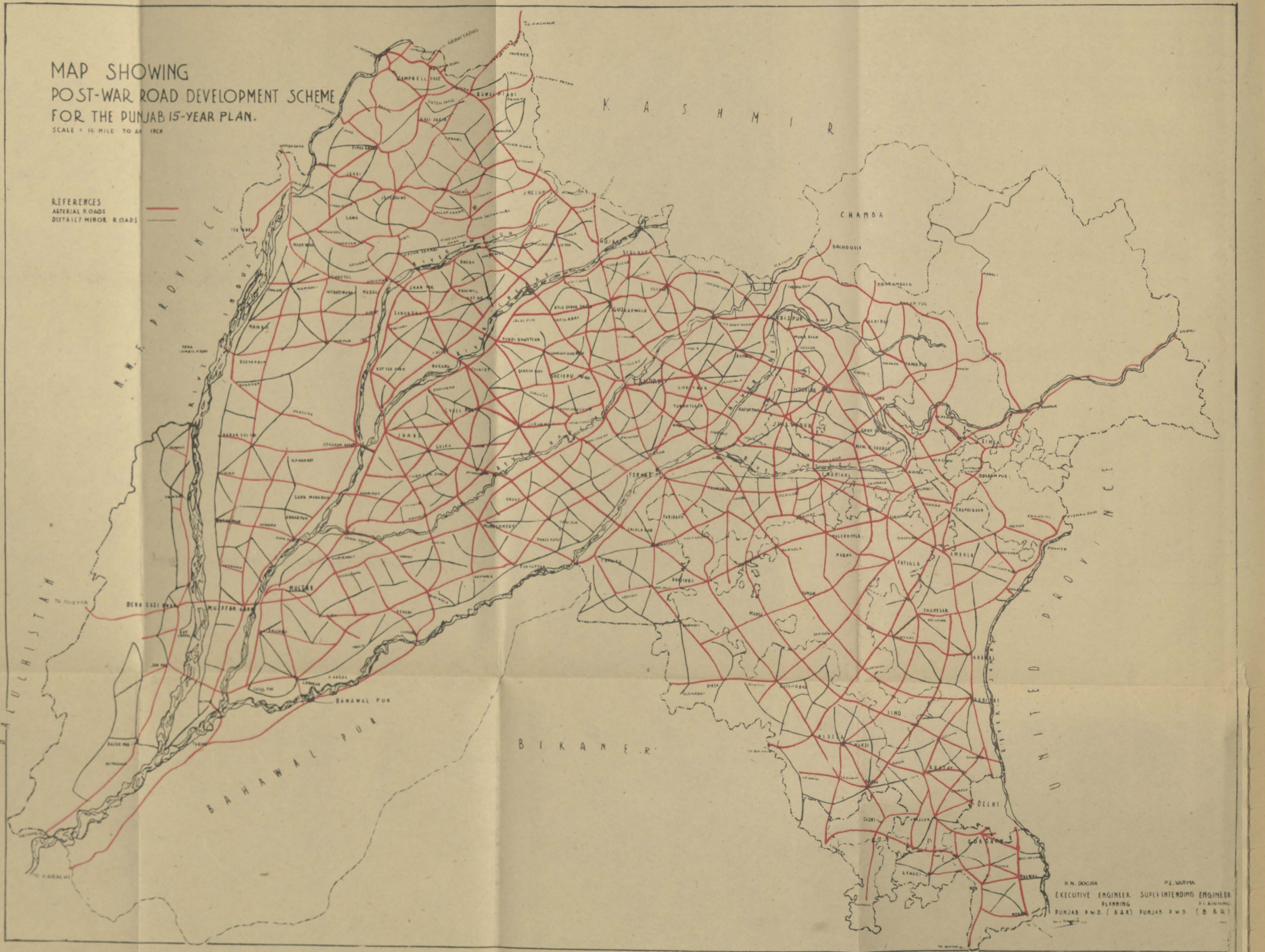
7. *Village drainage*—To keep villages clean it is very necessary that some kind of drainage should be provided by means of which sullage water from houses is taken out of the village and suitably disposed of. At the first stage of improving village sanitation and drainage it is proposed to take up work in 1,189 villages of the selected tahsils which have panchayats. It is proposed to improve the main streets of each village by providing side drains of cheapest design, consistent with sanitary requirements, and a certain amount of essential paving to protect the drains. The drains will be laid to discharge on to land on the outside of the village where any sullage discharge could be used to irrigate crops wherever it is feasible to do so. Experience has shown that unless some agency exists in a village to keep the drains clean, they are liable to be choked up and buried under mud and debris and hence the selection of panchayat villages in the first instance.

8. *Model village houses*—The houses in villages are generally badly designed. There is no proper ventilation and most of the rooms are poorly lighted. There is no separate arrangement for tethering of cattle and storage of grain and fodder, etc. It is, therefore, proposed to construct a model house in at least every panchayat village. The house will be constructed with material available locally with local labour and will serve not only as a model but also as a meeting place, a club or a guest house for the village.

The approximate cost of the schemes is given below :—

(In thousands of rupees)

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five Year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
180	Water supplies ..	Concentrated Arae	2,00,32	..	2,00,32	4,09
181	Provision of latrines on the septic tank principle for Panchayat villages.	Ditto	1,09,78	..	1,09,78	96
182	Provision of skelton drainage for Panchayat villages.	Ditto	23,78	..	23,78	95
183	Opening of 134 new Maternity and Child Welfare Centres.	All Province	1,34	9,08	10,42	2,70
184	Inspecting establishment for Maternity and Health Centres.	Ditto	4	1,00	1,04	22
185	Anti-malaria works ..	Particular Area	1,00,00	..	1,00,00	..
186	Creation of a second Public Health Corps for each district.	Special Priority	..	18,80	18,80	3,88
187	Appointment of 56 Sub-Assistant Health Officers and 28 Sanitary Inspectors.	Ditto	..	8,69	8,69	1,89
188	Model village houses for 1,189 Panchayat villages.	Concentrated Area	23,78	..	23,78	..
189	Health Exhibition ..	All Province	2,68	..	2,68	..
	Total—Public Health..		4,61,72	37,57	4,99,29	14,69



MAP SHOWING
POST-WAR ROAD DEVELOPMENT SCHEME
FOR THE PUNJAB 15-YEAR PLAN.
REFERENCES
ARTERIAL ROADS
DISTRICT MINOR ROADS
K A S H M I R
CHAMBA
N.W.F. PROVINCE
BALUCHISTAN
BAHAWAL PUR
B I K A N E R
UNITED PROVINCE
BAHAWAL PUR
DELHI
R.N. DOGRA
EXECUTIVE ENGINEER PLANNING
PUNJAB P.W.D. (B&R)
P.L. VARMA
SUPERINTENDING ENGINEER PLANNING
PUNJAB P.W.D. (B&R)

CHAPTER XII

Roads and Transport

1. The backward state of road communications in India will be fully realised when the incidence of its road mileage is compared with that in some of the leading countries in the world. The incidence of metalled roads in India is only ·05 miles per square mile as compared to 3 per square mile in Japan, 2 per square mile in the U. K. and 1 per square mile in America. It is not, therefore, surprising that all plans for India's development which have been recently put forward, such as the Bombay plan and the peoples Plan, etc., in spite of the fundamental differences in their conception, have all laid stress upon the necessity of providing an efficient system of road communications for the future development of the country and have given it the highest priority.

2. A meeting of the Chief Engineers of the provinces and States in India was held at Nagpur in 1944 to discuss the future road policy of the country and to work out a basis for a Road Plan for the whole of India. The scheme of post-war road development for the Punjab is based on the recommendations of this Conference.

3. The lengths given below show the existing and the proposed length of roads (in miles) provided in the Road Development Scheme. The Arterial Road System which consists of National Highways, Provincial Highways and District major roads will look after the regional, provincial and urban interests of the province and the Rural Road System which includes District minor and village roads in conjunction with the Arterial System is intended to provide access to rural areas :—

	Proposed	*Existing*	*Total*
(*a*) *Arterial Road System*—			
1. National Highways ..	566	1,715	2,281
2. Provincial Highways	2,801	1,853	4,654
3. District Major Roads	3,769	1,543	5,312
(*b*) *Rural Road System*—			
4. District Minor Roads	6,643	305	6,948
5. Village Roads ..	11,260	..	11,260

These would give an incidence of ·33 miles per square mile against the existing incidence of metalled and unmetalled roads of only ·05 and ·23 miles per square mile, respectively. The target aimed at is that all roads shall be all weather roads and there will be almost no town in the province with a population of 5,000 souls or over which will not be connected by a metalled road and there will be no village in the province which shall be more than 2 miles from an all weather road.

4. The above programme is proposed to be completed in 15 years and has been divided into 3 Five Year Plans. In the first 5 years when the difficulties of obtaining tools and plant will be great and there may be some difficulty even in obtaining the staff for execution, etc., it is proposed to construct the following length of roads :—

	Miles
1. National Highways	253
2. Provincial Highways	1,115
3. District Major Roads	744
4. District Minor Roads	1,318
5. Village Roads	1,970

5. It is proposed that all Arterial Roads in the province should consist of 10′ wide black top roads except where the heavier intensities of traffic would require better specifications such as cement concrete. The rural roads which would cater for a different type of traffic will consist of either cement concrete trackways or stabilised soil roads. The following land widths have been provided for in the scheme :—

	Feet
1. National Highways	200
2. Provincial Highways	180
3. District Major Roads	100
4. District Minor Roads	60
5. Village Roads	30

6. The cost of the whole 15 years plan is estimated to be Rs. 69 crores (odd) and the cost in the first 5 years will be Rs. 12½ crores. This scheme in addition to providing a very essential service for the future economic and social development of the Province, will absorb a very large number of demobilised servicemen as well as road making machinery trucks, etc., to be made surplus from the Army.

7. The road transport services have in the past suffered from uneconomic competition and were maintained by operators

at a very low level of efficiency. With the implementation of the road development scheme very heavy demands will be made on the transport system of the province. To meet this contingency the Provincial Transport Department have started a programme of rationalisation of the transport system and have already achieved much success. Out of a total of 4,469 individual permit holders 106 transport combines have been organised, of which 92 are limited liability companies and 14 co-operative societies. Standard designs for motor bodies have been approved and upper class accommodation has been provided on a number of routes. Government have also decided to take over a number of passenger and goods services.

In the post-war period it is proposed to extend the activities of the department which aim at complete replacement of individual permit holders by limited liability companies, improvement of bus designs, construction of up-to-date stands, provision of suitable accommodation for all classes and other amenities for the public, setting up of time tables for services, establishment of separate departmental staff for inspection of motor vehicles, organisation of road parcel services, construction of a central workshop for the maintenance and repair of vehicles and acquisition of badly managed concerns by Government. Government are also considering to what extent, if at all, a controlling interest in road transport generally should be acquired by them.

8. The approximate cost of the schemes is given below :—

(In thousands of rupees).

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five Year plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
	Roads.					
190	Special priority schemes of Road Development in the Punjab.	Special Priority	92,47	3,16	95,63	1,50
191	Post War Road Development Scheme for the Punjab.	All Province	8,06,55	23,61	8,30,16	6,25
192	Concentrated Development Area Road Scheme of the Punjab.	Concentrated Area	3,15,28	7,91	3,23,19	1,64
	Total Roads ..		12,14,30	34,68	12,48,98	9,39
	Transport					
203	Rationalisation and Development of Road Transport.	All Province	6,00,00	..	6,00,00	..

CHAPTER XIII

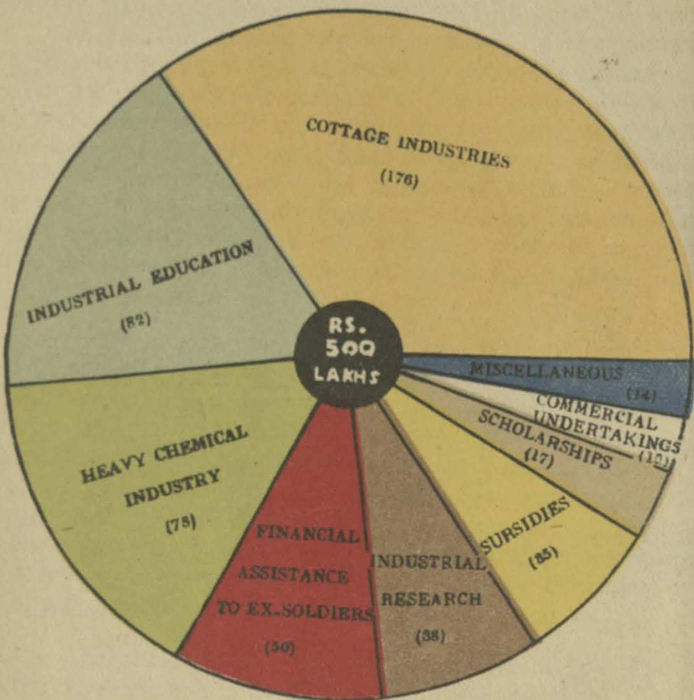
Industries

The Punjab is regarded an industrially backward province, but it has made a magnificent contribution to the war effort even in this sphere. It is true that the province cannot boast of many large-scale industries, but its skilled workmen are second to none in the country. It is rich in raw materials and has a wide network of cottage industries spread all over the province. When the war broke out in Europe in 1939 and the large scale industries in spite of working to their fullest capacity found themselves incapable of meeting the ever growing requirements of the Defence Services, the small scale industries of the Punjab quickly organised themselves and came to their rescue. Through the agency of these industries the Punjab has been able to supply goods worth crores of rupees in the shape of blankets, blanketing cloth, cutlery, surgical instruments, rubber and leather goods, mosquitto nets, machine tools and appliances, hosiery goods, etc., etc. Now that the war has ended, it has become the most serious concern of the Punjab Government to keep these small scale industries alive and help them to hold their own against rationalised and large scale industries in India and elsewhere. The cottage industries therefore occupy the first place in the post-war programme of the Industries Department. The Department is also fully conscious of the importance of large scale industry in the economic structure of a progressive country. The post-war programme of industrial development, therefore, includes schemes for providing specialised training both in India and abroad; for initiating intensive and extensive industrial research in the utilisation of the resources of the province; for putting up a pilot workshop for designing and manufacturing machines and appliances suited to Indian conditions; and for sponsoring new industries like coal-tar distillation, which have not yet been attempted by private enterprise.

2. The post-war plan of the Industries Department like other plans covers a period of five years and involves an expenditure of about rupees 5 crores—Rs. 4,99,79,150 to be very exact. Diagram (I) will show at a glance the chief post-war reconstruction schemes involving this expenditure. The main items are Rs. 176 lakhs for cottage industries, which include schemes for the expansion of woollen, cotton and silk spinning and weaving;

DIAGRAM 1.

EXPENDITURE ON POST-WAR RECONSTRUCTION SCHEMES OF THE INDUSTRIES DEPTT.



(FIGURES IN BRACKETS DENOTE LAKHS OF RUPEES)

Rs. 78 lakhs for coal tar distillation; Rs. 50 lakhs for financial assistance to ex-soldiers; Rs. 38 lakhs for industrial research; Rs. 37 lakhs for industrial education for boys; Rs. 11 lakhs for industrial education of girls; Rs. 22 lakhs for providing travelling demonstration parties; Rs. 35 lakhs for subsidies to industries; Rs. 17 lakhs for award of victory scholarships for industrial training; Rs. 13 lakhs for tanning and leather goods making industry and so forth.

3. The motif of the plan is a substantial but judicious Government assistance to private enterprise without introducing Government ownership or undue interference. The Government in other Departments are already financing major projects like irrigation, generation of hydro-electric energy, etc. As far as industrial development is concerned, the Department's view is that it should be left to the initiative and resources of capitalist competitive enterprise; and Government should confine their activities to providing such facilities as supply of raw materials and cheap power; acquisition of land; conduct of research and training of technical personnel. There are, however, certain industries, like the manufacture of heavy chemicals which are of national importance, but which private industrialists are reluctant to take up. These should be run by Government.

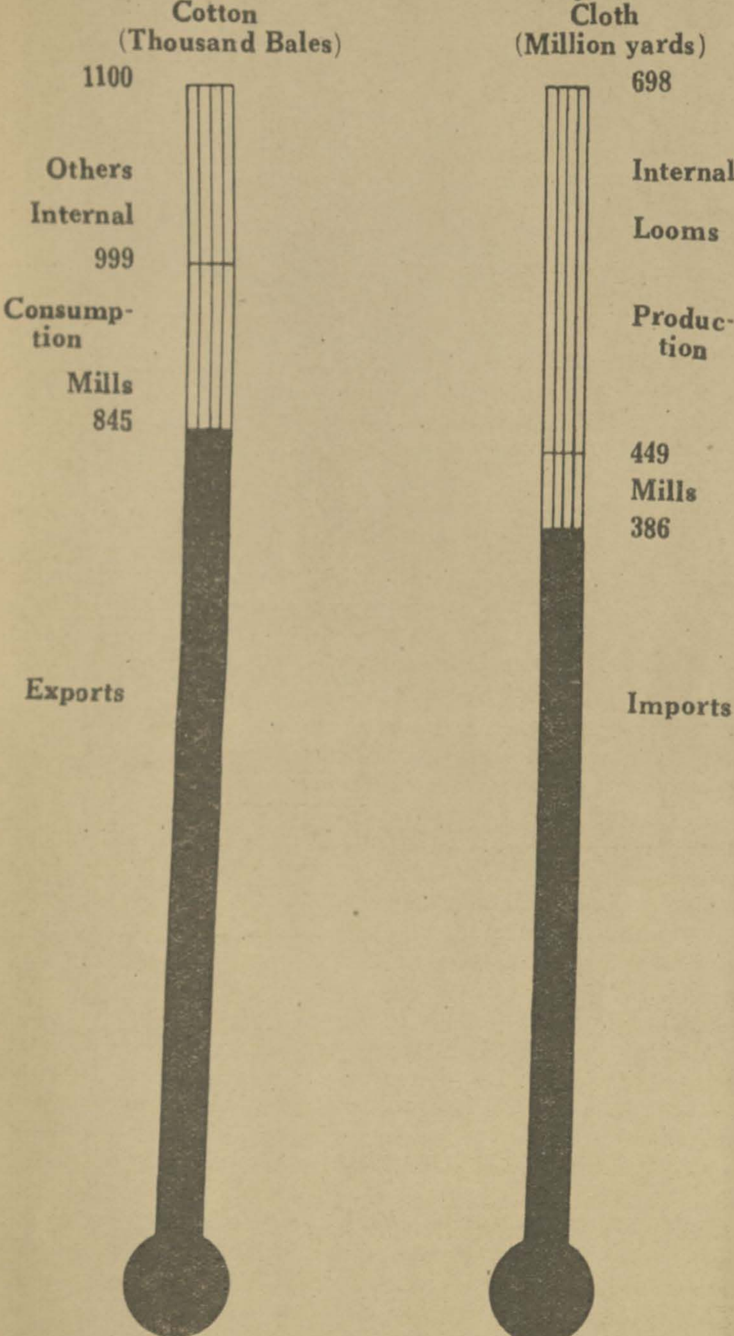
4. The only chemical industry, which the Punjab Government propose to take up under this programme is the economic utilisation of Punjab coals for the production of coal-tar, lubricants and disinfectants. Preliminary research has already started on a pilot plant scale under the supervision of highly qualified chemists. Similarly investigations are being carried out on the reaction of Punjab soils to chemical fertilizers and if the results are satisfactory, a large Ammonium sulphate factory will be set up by Government at a cost of several crores of rupees, which will have to be provided separately.

5. One has only to compare the present budget allotment of the Department of Industries, i.e., Rs. 40 lakhs with the contemplated expenditure of Rs. 5 crores on the post-war reconstruction programme, to realise the magnitude of the proposed development in the post-war period. The expenditure will be spread over the expansion and improvement of the existing activities and the introduction of some fresh ones. Industrial education has been in the past the most important activity of the Department and accounts for more than 40 per cent

of the total expenditure. Under the post-war reconstruction programme it will be extended in three ways : (1) by increasing the number of Industrial Schools and Institutes run by the Department, (2) by raising the status of some of the schools to that of institutes, and (3) by adding new sections in the existing schools. Three new schools at Rawalpindi, Ambala Cantonment and Multan for training electrical supervisors, and a metal works institute at Rawalpindi to impart specialised training in automobile repairs will be established, and leather-works sections will be added to the Industrial schools at Gujrat, Montgomery, Rohtak and Dera Ghazi Khan, besides the opening of an instrument making section in the Metal Works Institute, Ambala City. For girls 23 new Industrial Schools will be started raising the total to 29, so that each district (with the exception of Simla) will have one Industrial School for girls.

6. While the industrial schools are the chief purveyors of industrial education in the Punjab, the various technical institutes maintained by the Department serve as the nerve centres of technical instruction and advice. In the post-war period, the functions of these institutes will be extended and the scope of the services rendered by them very much enlarged. There will be an extension in the activities of the Institute of Dyeing and Calico Printing, Shahdara, which will have, besides its present cotton dyeing section, similar sections for wool and silk dyeing and calico printing and will also include in its curriculum beam and cheese dyeing and manufacture of textile chemicals. In the Government Tanning Institute, Jullundur, a commercial section will be attached to give training on continuous and large scale production, and at these and other institutes, courses in chemical engineering, textile chemistry, oil technology, rubber technology, ceramics and food technology will be introduced. Some of these courses will be taken up in evening classes and are intended to serve the same purpose as a Polytechnic Institute. While the facilities for technical instruction will be enlarged in this manner, those for technical demonstration too, will be greatly extended. Technical demonstration is provided by the Department through the Travelling Demonstration Parties maintained by it. In the post-war schemes, 50 more parties at a cost of Rs. 5 lakhs are proposed to be organised and special attention will be given to the revival of chemical cottage industries, such as the production of borax, alum, salt-petre, glue, gut, inks, etc.

DIAGRAM 2.
(Textile Barometer of the Punjab)



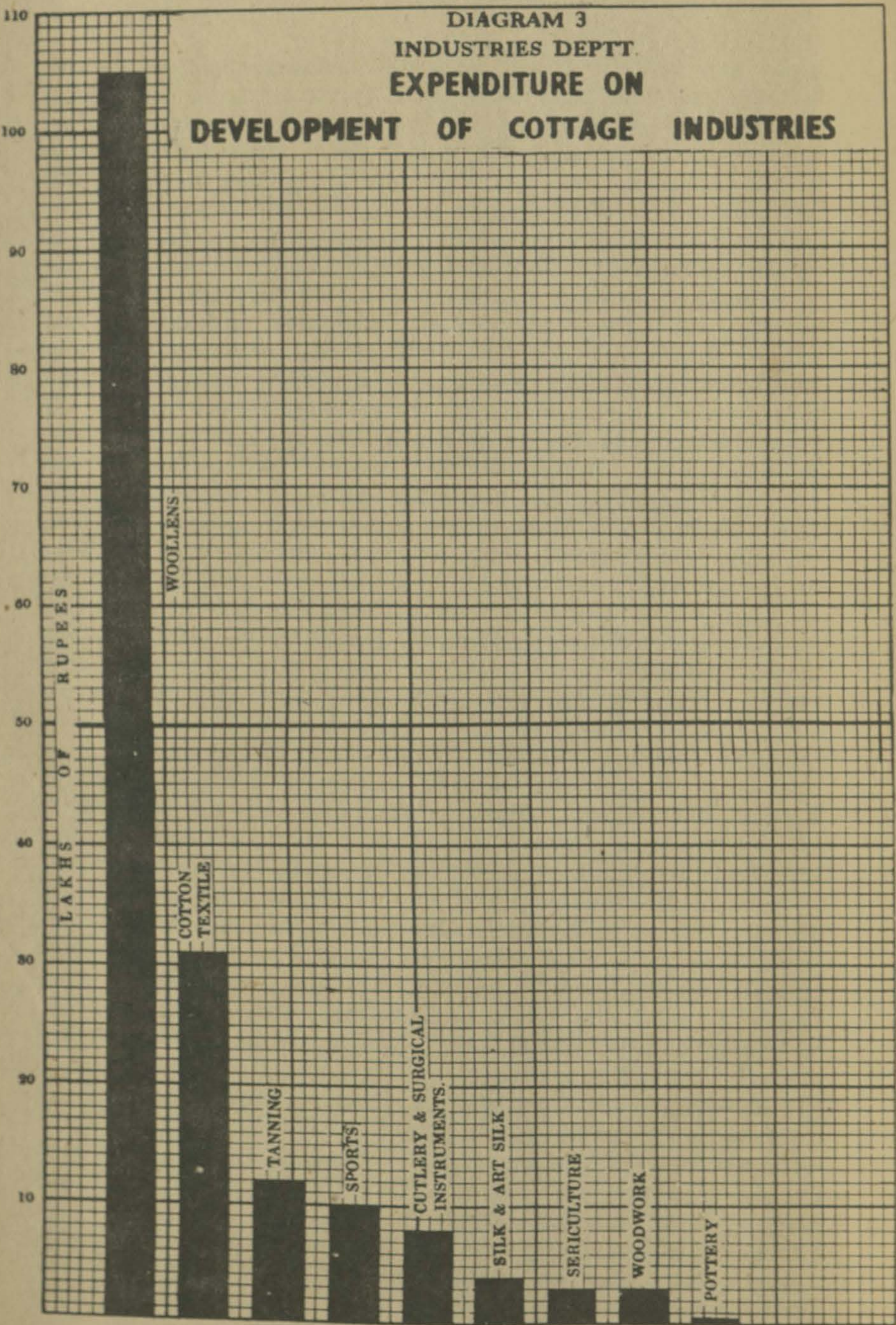
Punjab, a big producer of cotton, exports her cotton and imports cloth.

7. Another notable aspect of the post-war reconstruction programme is the large increase in the financial assistance given by the Department to students in the form of stipends and scholarships and to industry in the form of subsidies. Victory scholarships of the value of 1½ lakhs in the first year of the plan, and increasing progressively to Rs. 4½ lakhs in the fifth year of the plan are proposed to be awarded. Of these, 20 scholarships will be given for industrial training abroad, 26 scholarships will be awarded to ex-servicemen with service in combatant ranks, 10 scholarships are reserved for boys belonging to scheduled castes and 40 scholarships, of which 20 will go to girls from rural areas, are set apart for the training of girls. The present annual expenditure on subsidies is Rs. 75,000. In the five years of the post-war plan the total expenditure will be of the very respectable order of Rs. 35 lakhs. Ex-servicemen wishing to start industries of their own will receive special assistance from the Department and an annual amount of Rs. 10 lakhs, i.e., Rs. 50 lakhs for the whole period of the plan, has been set aside for the purpose.

8. The development of cottage industries occupies the most important place in the post-war plan, for the industrial structure of the Punjab is really based on small scale and cottage industries in rural and urban areas and any setback or damage sustained by these industries is bound not only to shake the whole structure, but to involve several lakhs of workers in the miseries of unemployment and poverty. Each of the major cottage industries has its own distinctive problems, but some of the problems such as an assured supply of standardised raw materials, facilities for processing and finishing and suitable arrangements for marketing and finishing products, are more or less common to all. More than one-third of the total reconstruction expenditure will go towards strengthening the foundations of the major cottage industries of the province. The textile cottage industry with its three branches of cotton, silk and wool comes foremost by reason of its importance.

9. Diagram II will show that immense possibilities and potentialities exist for the development of the cotton textile industry alone. To set the textile industries of the province on their feet it is proposed in the post-war period to set up special spinning plants to turn out cotton, woollen and worsted yarn for being supplied to the cottage workers at reasonable rates, to instal finishing stations and to improve and expand the existing

marketing organisations. Moreover, to be in line with other progressive countries a very novel experiment has been proposed to be conducted in the post-war programme for the development of textile industries. Handlooms are suitable for the production of certain qualities of fabrics, but power looms operated in cottages combine the advantages of both mills and handlooms. In Japan cottage workers are provided with units of one or two power looms, on which they work in their leisure hours. Large scale spinneries provide yarn of suitable qualities to these workers and finishing establishments take the cloth from them as soon as it is ready. Cloth is thus produced by the cottage workers with practically no overhead expenses and this explains how the cottage textile industry in Japan can compete with mill production. There is no reason why such an experiment should not succeed in the Punjab. In the post-war programme for the development of cottage industries in the Punjab it is proposed to set up a Government colony consisting of 50 cottages, each of which would house two or more power looms. One or two weavers from each district of the province will be invited to occupy these cottages and will work under the instructions of the authorities of a Central Preparatory and Finishing Station, which will take up the work in connection with the winding, warping, sizing, dyeing, finishing and finally baling. Final decisions regarding the location of the proposed colony and the spinneries for both cotton and woollen yarn and finishing stations, etc., will be taken in the light of the prevailing conditions, but it is considered desirable that the Government colony of cottages for power loom weavers together with its central finishing station and the cotton spinning mill should be located at a place somewhere on the Grand Trunk Road between Lahore and Amritsar; the spinning mill for worsted yarn at Amritsar and a new finishing and dyeing station for wool along with a designing centre at Palampur. The Marketing Organisation for all the three branches of the textile industry is proposed to be strengthened and extended and a central designing and marketing agency for silk will be set up at Multan. Besides the textile cottage industry, sericulture offers large scope for development and under the post-war programme it is proposed to set up a fourth grainage centre near Kulu and also two additional nurseries for mulberry culture; one in the Rawalpindi district and the other in the Hoshiarpur district. For developing the tanning and leather goods industry provision has been made for setting up dyeing and finishing plants with modern equipment at the five important tanning and leather centres of the


DIAGRAM 3
INDUSTRIES DEPTT.
EXPENDITURE ON
DEVELOPMENT OF COTTAGE INDUSTRIES
110
100
90
80
70
60
50
40
30
20
10
LAKHS OF RUPEES
WOOLLENS
COTTON TEXTILE
TANNING
SPORTS
CUTLERY & SURGICAL INSTRUMENTS.
SILK & ART SILK
SERICULTURE
WOODWORK
POTTERY

province, viz., Sialkot, Multan, Amritsar, Hissar and Rawalpindi. The chief requirements of the metal industries, i.e., cutlery and surgical instrument making, which have made such a remarkable contribution to the war effort, are the supply of suitable steel and modern heat treatment. To satisfy these needs it is proposed under the programme to establish two centres : one at Wazirabad and the other at Sialkot under the joint control of a fully qualified Metallurgist and a Marketing Officer. The centre at Sialkot will also have a depôt for the supply of suitable steel, coal and improved implements ; while the Metallurgist will organise a laboratory for testing steel and put up furnaces for heat treatment. The Marketing Officer will supply designs, patterns and samples of goods and also marketing intelligence. For the sports goods industry at Sialkot it is proposed to attach to the Sialkot centre for surgical instrument making industry a depôt, which will maintain a sufficient stock of raw materials to be supplied to the sports goods workers on credit. To this depôt will be attached a small workshop fitted with up-to-date wood cutting, leather stitching and stamping machines. Its services will be available to the cottage workers in sports goods at nominal rates. For the development of the pottery industry one or two demonstration kilns at the two chief pottery centres, i.e., Multan and Gujrat, are proposed to be set up and if successful, will be introduced at other centres also. The wood working industries like other cottage industries require a steady and adequate supply of raw materials or half wrought material and it is proposed to put up a Government Central Saw Mill and Wood Works at Beas or Dhilwan to supply such material to the cottage workers engaged in wood work and manufacture of furniture in the districts of Jullundur and Hoshiarpur.

This is in brief the programme of the Industries Department for the development of cottage industries in the post-war era. For details of expenditure diagram III may be seen. It will be observed that the lion's share goes to the woollen industry. This is necessary, because this industry while offering excellent prospects, is as yet in a very unorganised and primitive stage in this province.

10. An important item in the post-war programme of development is the extention of industrial research, for which the post-war plan makes a substantial financial provision of nearly Rs. 78 lakhs. Firstly the general industrial research will be undertaken on a very much larger scale in order to assist in the establishment of new industries and the extension of existing

ones. Secondly, pilot plants will be set up for the economic utilisation of Punjab wood in order to produce methylated alcohol, acetic acid, etc., and for the manufacture of starch products, e.g., glucose, dextrine. Thirdly a pilot workshop will be established to undertake experimental and research work on the fabrication of new machinery and the adaptation of imported plants to local conditions.

11. A reconstruction programme of such magnitude cannot be executed by the present limited staff of the Industries Department. It is therefore proposed to augment the staff by appointing an Additional Director of Industries (Industrial Engineer); a third Assistant Director of Industries (Miscellaneous), one Cottage Industries Officer and five Planning Officers.

The approximate cost of the schemes is given below :—

(In thousands of rupees)

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five-year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
204	Coal Tar Distillation..	All Province	78,00	..	78,00	..
205	Appointment of field staff.	Ditto ..	..	65	65	15
206	Opening of additional industrial schools and institutes and extension of the scope of existing ones.	Special Priority.	29,99	6,90	36,89	1,38
207	Opening of industrial schools for girls in the Punjab.	All Province	2,50	8,13	10,63	1,84
208	Specialised technical institutes.	Paritcular Area	5,45	1,75	7,20	35
209	Evening classes in technology.	Ditto ..	80	4,76	5,56	95
210	Award of Victory Scholarships for industrial training.	All Province	..	16,93	16,93	4,20
211	Grant of subsidies to industrialists for the development of industry.	Ditto ..	..	35,00	35,00	5,00
212	Financial assistance to ex-soldiers with service in combatant ranks.	Ditto ..	..	50,00	50,00	10,00

(In thousands of rupees)

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five-year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
213	Cotton spinning and weaving	All Province	18,72	..	18,72	..
214	Establishment of an industrial colony for power-loom weavers.	Particular area	9,30	..	9,30	..
215	Establishment of collecting, dyeing, finishing and distribution stations for the help of cotton handloom industry.	Ditto	1,80	1,00	2,80	20
216	Wool spinning and weaving	Ditto	96,00	8,75	1,04,75	1,75
217	Silk and Art Silk Weaving	Ditto	1,50	2,25	3,75	45
218	Development of sericulture industry	All Province	..	3,26	3,26	65
219	Development of tanning and leather goods industry.	Particular area	4,00	8,25	12,25	1,65
220	Development of cutlery and surgical instruments industries.	Ditto	5,60	2,44	8,04	49
221	Development of the sports goods industry, Sialkot.	Ditto	8,75	1,10	9,85	22
222	Development of pottery industry.	Ditto ..	10	9	19	2
223	Development of wood-working industries.	Ditto ..	2,15	1,21	3,36	24
224	Establishment of travelling demonstration parties.	All Province	..	22,50	22,50	5,00
225	Expansion of the Demonstration Weaving. Factory, Shahdara.	Particular area.	8,50	1,00	9,50	25
226	Industrial Research ..	Special Priorty.	23,75	13,91	37,66	2,75
227	Additional staff required for the execution of the programme of post-war reconstruction.	Ditto ..	5,00	8,00	13,00	1,60
	Total Industries ..	..	3,01,91	1,97,88	4,99,79	39,14

CHAPTER XIV

Miscellaneous

Buildings and Roads Construction—The Plan envisages the construction of a large number of buildings as an integral part of the various schemes. Besides, to improve the efficiency of the Provincial Secretariat and attached offices at Lahore a large building programme is contemplated which includes the construction of an Administrative Centre and housing accommodation for junior officers, clerks and peons.

The large construction programme of roads and buildings will necessitate the purchase of adequate machinery, tools and plant and making of reasonable arrangements to keep this machinery in a good state of repair. It is, therefore, proposed also to set up a central workshop with three subsidiary workshops.

Ihe planning and preparation of buildings and roads schemes is being done by a special staff under a Superintending Engineer with an Executive Engineer in charge of road projects only. For the execution of the schemes an additional staff consisting of one Chief Engineer, 4 Superintending Engineers, 14 Executive Engineers and 38 Sub-Divisional Officers with other necessary subordinate staff is proposed to be appointed.

Fo meet the demand for the large number of engineers and technical staff both for superior and junior posts, it is proposed to establish an Institute of Technology by expanding the existing Maclagan Engineering College, roughly at a cost of Rs. 75 lakhs. Provision has also been made for sending 62 students abroad during the next five years for higher training in various branches of technology.

Planning—Steps taken in other departments for planning purposes are :—

(1) A project circle, one tubewell division and three sub-divisions have been formed under one of the Chief Engineers with one Superintending Engineer, 5 Executive Engineers and 18 Sub-Divisional Officers to investigate and prepare irrigation and hydro-electric projects.

(2) An Executive Engineer and two Sub-Divisional Officers have been added to the Public Health Branch to work out details of water supply and drainage schemes. This branch

will further be strengthened in the post-war period by the appointment of one Superintending Engineer, five Executive Engineers and 7 Assistant Engineers and Sub-Divisional Officers.

(3) Officers on special duty have been appointed in the Education and Medical Departments to work out details of their schemes.

(4) Provision has been made for the appointment of a Development Commissioner for the province to co-ordinate the activities of the various departments.

Town Planning and Improvement—There is already a Town Improvement Trust usefully functioning at Lahore. Eight more have been or are in the process of being established in the following principal towns of the province :—

Multan, Amritsar, Rawalpindi, Sialkot, Jullundur, Ludhiana, Jhang and Kasur.

Until recently there was only one Town Planner in the Punjab to look after the whole province. There is now a Provincial Town Planner with a Divisional Planner at the headquarters of each civil division. Provision has been made for the appointment of a Town Planner for each district. This town planning organisation will prepare buildings and lay-out plans for the local bodies and, if necessary, look after and supervise their buildings control work.

Special Funds—Much stress has already been laid in the plan on the development of rural areas. These areas will in addition benefit from—

(*a*) The Special Development Fund started in 1938 (balance nearly a crore of rupees) with the object of intensifying the development programme of the beneficent departments.

(*b*) The Peasants' Welfare Fund (balance over two crores) created in 1942 to give relief to smaller peasant proprietors by providing educational, better farming and marketing, credit and other facilities.

The demand on timber and other forest produce necessitated by the war has resulted in increased and advance fellings and to ensure that the Punjab Forests are properly conserved a separate Forest re-construction fund has been created (balance 30 lakhs).

Printing and Stationery—The Plan also includes provision for the expansion and re-organisation of the printing and stationery department to suit post-war conditions.

The approximate cost of the schemes is given below :—

(In thousand of rupees)

Scheme No.	Scheme	Category of Scheme	Approximate cost of the Five-year Plan			Annual recurring expenditure at the end of five years
			Capital	Recurring	Total	
	Public Works Department Technical Education and Buildings					
193	Technical education ..	Special Priority	75,00	..	75,00	..
194	Foreign scholarships..	Ditto..	..	4,65	4,65	1,58
195	Purchase of tools and plants required for post-war works.	All Province	69,55	7,70	77,25	1,54
196	Construction of additional quarters, for Superintendents, Personal Assistants, Assistants and Senior and Junior Clerks at Simla.	Particular Area	5,75	..	5,75	..
197	Construction of an Administrative Centre at Lahore.	Ditto..	1,80,00	..	1,80,00	..
198	Providing accommodation for the various offices in Lahore.	Ditto..	30,00	..	30,00	..
199	Housing scheme for junior officers in Lahore.	Ditto..	41,50	..	41,50	..
200	Proposed Colony for clerks at Lahore	Ditto ..	50,00	..	50,00	..
201	Office servants quarters estate at Lahore	Ditto ..	44,00	..	44,00	..
202	Establishment required for post-war schemes.	All Province	..	72,76	72,76	21,38
	Total—Technical Education and Buildings		4,95,80	85,11	5,80,91	24,50
228	Appointment of a Development Commissioner.	Special Priority	..	3,03	3,03	62
	Printing and Stationery					
229	Expansion and Reorganisation Scheme	All Province	16,00	70	16,70	20

CHAPTER XV

Publicity

It needs no emphasis to assert that the success of the various Reconstruction and Development Schemes included in this Plan will ultimately depend in a large measure on the amount of co-operation and the extent of enthusiasm that can be drawn from the people to be benefited by these schemes. The value of organised publicity and propaganda as a means to stimulate public enthusiasm and to direct public energy in the right channels is well established. There are two stages for any successful publicity. The first is to produce the material and the second is to reach the public. Before any film can be prepared, drama written, press *communique* issued or speech made there must be adequate information regarding the points which have to be advertised. Each department is making its own arrangements for the suitable preparation of the necessary basic material. It is, however, proposed to have a single provincial organisation to deal with the publicity requirements of all departments and of government as a whole. The advantage of having unified control, combined technical training and purchase, and co-ordination on a provincial basis, will more than outweigh any possible loss of emphasis on the lesser needs of those departments which may at present be doing their own publicity.

General

The civil district will be the basic unit, and will be provided with adequate and expert staff, technical equipment and transport. Work in districts will be reinforced by supervision at a regional level in which Lahore and Jullundur will each be one region, while Ambala division will have one sub-region, and Rawalpindi and Multan divisions will have one extra sub-region between them, making a total of seven regions in all. The provincial office in Lahore will include all those specialized sections which cannot suitably be financed on a district or on a regional basis, and will supply both direction to the department and contact with Government.

District Offices and Sub-Offices

Each district will have a publicity office under the charge of a whole-time District Publicity and Information Officer. He will be provided with one Assistant, one lecturer per Tahsil, a mobile cinema unit, a singing party, drama party, public address sets, radios and a touring van for the use of staff and

workers. Villages will be reached by the District Publicity Officer direct, and through tehsil sub-offices run by voluntary workers. A strong contact will be maintained with all unofficials of influence through the existence of honorary district, tahsil and village office-holders forming an integral part of the organisation.

Regional Head-quarters

These are entirely for instruction and supervision, and they have been included as a result of recent practical experience that work in districts cannot be sufficiently closely controlled from Lahore. Technical equipment and staff, in particular require perpetual supervision. Each regional headquarters will still include a Regional Organiser and a lady Organiser, senior technical Supervisors for cinema, radio, and motors, and at least one vehicle for the use of the staff.

Provincial Office

This will be divided into the following eight sections each of which will be in charge of a Gazetted Officer :—

(*a*) *Office*—Establishment, accounts, inspection of branch offices, purchase and stock.

(*b*) *Mobile cinema units and film production*—Techincal superivision and control of district and reserve cinema units, the production in the province of six cinema films a year, the training of technical staff, and the maintenance of motor and cinema workshops.

(*c*) *Radio and broadcasting*—Distribution and maintenance of radio sets and public address equipment, assistance in the preparation of the All-India Radio local rural programmes.

(*d*) *Song and drama*—Control of district signing parties and provincial orchestra, production of music, songs and poems for gramophone records films and broadcasting, arrangements for mushairas, control of district drama parties, and production of dramas for stage and radio.

(*e*) *Press and publication*—Press publicity, contact with district papers, publication of pamphlets and posters, and production of material for district lecturers and speakers.

(*f*) *Exhibition*—Touring of divisional exhibitions, static exhibits at district headquarters, production of models and equipment for all forms of visual publicity.

(*g*) *Youth*—Contact with men's schools and colleges, with the Education department, and with Youth organisations.

(*h*) *Women*—Contact with girls schools, women's colleges, women's organisations, welfare, and control of regional organisers.

Direction

Direction of the activities of the organisation will be received at three levels. From the Central and Provincial Governments as well as from provincial Heads of Departments to the Provincial Office ; from Commissioners to Regional and from District Authorities to District Publicity Offices. Publicity can equally well be given to a policy required by the Central Government throughout the province, or in a particular village on a matter of local importance at district request. All the media of publicity can be directed to advertising the same message, or they can be used separately for different subjects.

The Target

After five years every district in the province will have its own :—

(*a*) mobile cinema van equipment and staff,

(*b*) drama party,

(*c*) singing party,

(*d*) public address equipment,

(*e*) at least fifty-five working public radio sets,

(*f*) trained lecturers,

(*g*) reading rooms,

(*h*) vehicle for conveyance of workers,

(*i*) non-official workers,

(*j*) district paper.

The approximate cost of the scheme is—

	Non-recurring	*Recurring*
	Rs.	Rs.
District Organisations	11,84,850	67,68,957
Tahsil Sub-offices	1,06,490	26,85,365
Regional Headquarters	91,980	13,45,315
Provincial Direction and Office ..	1,10,760	31,75,111
	14,94,080	1,39,74,748

	Non-recurring	Recurriug
	Rs.	Rs.
Deduct share of Government of India under Field Publicity Scheme for five years ..	2,51,575	7,50,564
	12,42,505	1,32,24,184
Deduct amount already paid by the Provincial Government before the scheme begins	2,51,575	3,75,282
Grand Total ..	1,38,39,832	

CHAPTER XVI

Welfare and resettlement of ex-servicemen

Welfare

The interests and welfare of serving or discharged sailors, soldiers, airmen and their families in the Punjab are looked after by District Sailors', Soldiers' and Airmen's Boards which exist in all the districts of the Province, except Simla and Dera Ghazi Khan.

The Punjab Government have already announced the grant to soldiers, ex-soldiers and their families of a number of concessions and facilities, details of which have been published in a separate booklet entitled "CONCESSIONS TO SOLDIERS". The more important of these concessions are :—

(1) Immediate award of land grants to Punjabi sailors, soldiers and airmen decorated for acts of gallantry in the present war.

(2) Reservation of 78,000 acres of good colony land for rewards to soldiers for services rendered during the war.

(3) Reservation of a large proportion of vacancies occurring in various services for war service candidates.

(4) Educational concessions to the children and dependants of all serving soldiers, including provision for a large number of scholarships both ordinary and vocational.

In arrangement with the Punjab Government the Military Authorities are giving short course training to selected serving soldiers in subjects like soil conservation, better methods of farming, co-operation, etc., with a view to produce a type of soldier-instructor who would impart the knowledge so gained to his comrades. Under this scheme Government has arranged for instructions to be given at different centres in the following subjects :—

Soil Conservation.
Better Methods of Farming.
Poultry.
Bee-keeping.
Fruit and Vegetable Farming.
Co-operation.
Consolidation of Holdings.
Animal Husbandry.

Arrangements for similar training in other vocational and industrial subjects are also under way.

So far as this Five Year Plans concerned, apart from the large share of benefits that will accrue to ex-servicemen and their families from the development schemes for the province as a whole, more particularly because improvement in several directions will be concentrated in the first instance in selected tahsils corresponding to heavily recruited areas, they will also be benefited by a number of schemes devised specially for their benefit.

For a long time the need has been felt to provide serving soldiers and ex-soldiers with rest houses at District and in some cases Tahsil Headquarters. Soldiers travelling on leave to and from their units usually wish to spend one or more nights at the District Headquarters before securing accommodation on trains or lorries. Besides, in addition to the many calls to District Headquarters for legal cases, etc., ex-servicemen often wish to attend meetings of the District Sailors', Soldiers' and Airmen's Boards, Re-union functions and so on, or to settle matters connected with their pensions or other allotments. It is, therefere, proposed to provide rest houses at the headquarters of each district and of about 30 tahsils which are separated from the District Headquarters by bad communications or which lie on the roads between other heavily recruited areas and to which soldiers will normally most often be travelling. The rest houses will be divided into three different categories according to the importance of the district as a recruiting area :—

Category A—Rest houses in this category will have, in addition to the central hall, six rooms for Indian Officers and families, two rooms for Indian Other Ranks and families and accommodation for about fifty Indian Other Ranks.

Category B—Rest houses in this category will have, in addition to the central hall, four rooms for Indian Officers and families, two rooms for Indian Other Ranks and families and accommodation for about thirty Indian Other Ranks.

Category C—Rest houses in this category will have, in addition to the central hall, two rooms for Indian Officers and families, one room for Indian Other Ranks and families and accommodation for about twenty Indian Other Ranks.

The tahsil rest houses will be in category 'C'. To provide for their maintenance each rest house will be endowed with a capital sum as below :—

	Rs.
Category	A—1,00,000
Category	B—75,000
Category	C—50,000

The total cost of constructing and endowing the rest houses is estimated to be rupees one crore.

The Agricultural Department have drawn up schemes to help ex-servicemen who may desire to settle down on land and adopt improved methods of farming. These provide for the supply at concession rates of improved seed and implements, fruit plants, etc., also for the grant of subsidies for the boring of wells and for sinking new wells. One hundred improved nurseries will be subsidised for the production of 25 lakhs plants to be supplied to ex-servicemen. It is estimated that about 50,000 ex-servicemen will be able to take advantage of these facilities annually. There is another scheme which will enable 10 students, sons of ex-servicemen, who possess requisite qualifications, to be admitted each year for free education in the four years B.Sc. Agriculture Degree Course at the Punjab Agricultural College, Lyallpur.

The development of dairying has assumed great importance in recent years and will open up new avenues for ex-soldiers. Arrangements will, therefore, be made at the Punjab Veterinary College, Lahore, for short courses of three to six months each to give elementary training in dairying to ex-servicemen desirous of taking it up as their vocation. They will also be given loans to set up the necessary equipment. Other schemes of the Veterinary Department relating exclusively to ex-servicemen are—

(1) Grant of 15 stipends each year of the value of Rs. 50 per mensem each tenable for 4½ academic years to deserving ex-servicemen or their sons for education in the Punjab Veterinary College, Lahore.

(2) Establishment of 500 sheep breeding units each consisting of one ram and 50 ewes to be entrusted to ex-servicemen interested in sheep breeding. These units will be given free of cost on 1/3 batai in wool and one male lamb per year for five years.

(3) Establishment of 182 First Aid Centres in rural areas each in charge of a literate ex-serviceman who will be given training in first aid and equipped with necessary apparatus. He will also be given an allowance of Rs. 10 per mensem to maintain his interest in the work.

The Industries Department are providing a large number of scholarships for industrial training and of these 25 scholarships of Rs. 75 per mensem tenable for two to three years will

be reserved for *ex*-soldiers. To assist *ex*-servicemen who may be diverted to industrial occupation to start on their own, it is proposed to give financial assistance in the shape of grants not exceeding Rs. 5,000 in any one case to about 200 persons annually.

Re-settlement

The execution of post-war reconstruction schemes will require the services of a large number of technical and non-technical personnel and thus provide many opportunities for *ex*-servicemen to secure employment.

The Government of India, in collaboration with the Provinces have decided to set up a net work of Employment Exchanges to facilitate registration for and placement in civil employment of demobilised members of the Defence Services and discharged war workers. In the Punjab there will be a Regional Employment Exchange at Lahore and 10 Sub-Regional Employment Exchanges at Amritsar, Rawalpindi, Ambala, Jullundur, Multan, Jhelum and four other centres the location of which has not yet been finally determined. The Sub-Regional Exchanges will be responsible for the registration and placement of personnel within their respective areas. They will keep in constant touch with Government and private employers and meet their demands for all types of personnel from the ranks of returned soldiers. Each Sub-Regional Employment Exchange will have a number of guides attached to it who will act as Employment Information Bureaux for compact areas each covering approximately 2,000 demobilised persons. They will be a supplementary channel for communicating information and advice to demobilised persons on all matters relating to their training, registration, placement, etc., and for forwarding any requests and communications from demobilised persons to the Sub-Regional Employment Exchanges. The Punjab Government have also undertaken to provide free technical and vocational training in all Government institutions for demobilised persons.

CHAPTER XVII

Conclusion

Finance

The Plan has been prepared on the assumption that 116 crores of rupees would be forthcoming for expenditure during the first post-war quinquennium. It is obviously impossible for the province to meet this huge expenditure out of its existing resources. For the successful execution of these schemes every possible source of revenue is being explored and financial assistance sought from the Government of India. In fact the Government of India are already contemplating to give subventions to provinces on a *per capita* basis, but in view of the splendid military record of this province it is hoped that the Central Government will find it possible to treat the Punjab on a more favourable basis and give a higher subvention than that proposed. Government have on their part instituted a Post-War Reconstruction Fund with a sum of Rs. 2 crores out of the revenue surplus of the year 1944-45. It is hoped to augment this fund according as revenue surplus may become available in the years prior to the introduction of the Plan. The balances which Government have accumulated will also be available for financing post-war schemes. Schemes which cannot be financed from these sources will have to be financed from loans.

Staff and labour difficulties

For the execution of the various development schemes and for carrying on research work in the several directions contemplated in the Plan, a great number of trained staff and skilled workers will be required. Extensions are being effected in the existing training institutions and provision made for the opening of new such institutions to meet this demand. Even so, at least in the initial stages, finding of suitable staff will present the greatest difficulty which may to some extent be mitigated by specialised workers being made available by the Army.

Labour difficulties which might be expected in view of the large construction programme contemplated could be met to some extent by employing *ex*-soldiers formed into Civil Pioneer Units with the very large amount of machinery likely to be available on military charge now that the war is over. Even if this method of construction proves initially more expensive,

it would be justifiable in the long run, if for no other reason, because it would afford a most valuable means for the resettlement of demobilised personnel.

Reservations

It must be clearly understood that this Plan is still of a tentative nature both in scope and outline and several of the schemes may have to be recast or revised or other schemes substituted as a result of further examination and in the light of such altered conditions as may occur before the Plan is put into effect. Further, the publication of the Plan in its present form does not mean that it has received the final approval of Government. Government would welcome all constructive criticism of the Plan from whatever quarter it comes and they consider that this would be most helpful in giving the Plan its final shape.

Conclusion

At the end, it must be emphasized that no scheme for the development of the province and improvement of mind and body of its people can succeed in its object unless those for whose benefit it has been formulated not only have an urge to lift themselves but also actively co-operate in what Government is planning to do for them. Government sincerely hope that this co-operation will be forthcoming in the largest measure possible and coupled with a desire to go forward will be the driving force behind the Plan.

1207 CS—5,000—3-10-45—SGPP Lahore.